



AGRICULTURAL RESEARCH INSTITUTE
, PUSA

DEPARTMENT OF AGRICULTURE
AND
TECHNICAL INSTRUCTION FOR IRELAND.

JOURNAL.

VOLUME VIII.

[OCTOBER, 1907, TO JULY, 1908.]



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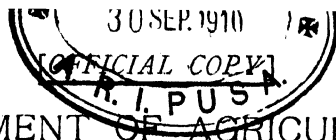
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Vol. VIII.



No. 1.

DEPARTMENT OF AGRICULTURE

AND

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JOURNAL.

Early Potato Growing—Potato Blight, Digging the Crop—Technical Instruction in Waterford—The Home Bottling of Fruit—Poultry Fattening—The Cultivation of Flax in Belgium and Holland—Advantages of Early Ploughing—Irish Produce at Grocery Exhibitions—Position of Larch in Irish Forestry—Crop Report—Fruit Crop Statistics—Official Documents—Notes and Memoranda—Statistical Tables.

EIGHTH YEAR.

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OCTOBER, 1907.



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NOTICE.

Communications respecting the literary contents of this JOURNAL should be addressed to the Superintendent of the Statistics and Intelligence Branch, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion-street, Dublin.

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EARLY POTATO GROWING.

Notwithstanding the unfavourable nature of the season, the results obtained by Irish early potato growers this year have been on the whole surprisingly satisfactory. During most of the period when heat and sunshine were requisite for the fullest growth of the tubers, dark wet chilly weather conditions prevailed. As a result the crop made but slow progress during the concluding weeks it was in the ground, and raised a smaller bulk of marketable produce than the vigour and strength of the haulms promised. Still on most of the light soils where early potatoes are customarily planted the excess of moisture insured a vigorous development of haulms, and this, together with the fact that except in the more exposed situations the plants suffered no backset at the critical stage from severe night frosts, enabled raising to be proceeded with in the different districts at as early a date as in previous seasons. The average yields obtained were somewhat less than those of the two preceding years, but this deficiency was compensated for by an improvement in the prices realized, so that growers have no reason to be discouraged, but rather the reverse as the outcome of this year's experience.

A promising feature in connection with the further development of the industry was evidenced this summer by the interest which cross-Channel potato merchants continue to take in the progress and quality of the Irish crop. During May most of the principal raising centres were visited by a party of Scotch buyers, and several lots were then purchased at a remunerative price per acre. It is evident from this that Irish early potatoes have now secured a recognised position in the leading English and Scotch marketing centres, and that, as the business develops, the quality and timeliness of the supply will not only make the demand more constant but more secure. The transit facilities obtained from the various carrying companies proved, as before, a great source of advantage to growers, and with an additional route by rail, and steamship now available for rapid delivery in London or in any of the leading centres of South Wales or England, the raising districts will be well served and new inducements given to potential growers in situations where the soil is suitable, but the local farmers have not as yet seen their way to make early potato raising part of their farm work.

For the present the early-potato industry in Co. Cork is confined to the districts around Clonakilty and Youghal.

County Cork
Results.

The former can almost lay claim to be the pioneer centre—in the South of Ireland, at least—and the leading growers in its vicinity have now become exceedingly expert in the management of every detail connected with the crop. This season the plots around Clonakilty showed the best appearance at every stage of the growing period, and subsequently proved to secure the best financial results. Near the end of May a number of growers disposed of their plots as they were in the fields, at prices which ranged from £30 to £40 per acre. As subsequent events showed, however, growers might have done better by raising and marketing the crop themselves, but when allowance is made for the risk and trouble involved, it is satisfactory that the figures thus early obtained were encouragingly remunerative. There can be no question but that in one case the buyer must have profited well by the transaction; in the particular instance referred to the plot was bought at the rate of £40 per acre; the yield on raising turned out to be 8 tons 6 cwt. per acre, and as the current market price for potatoes at the time these were sold was not less than £12 per ton, it will be seen that, with deduction for cost of raising and carriage, the merchant had still a handsome surplus remaining. Such of the crop as was raised by the growers themselves was consigned entirely to Glasgow, undoubtedly the best market for early potatoes in Great Britain up to June 20th, after which date the Ayrshire crop, as a rule, begins to pour in. Marketed in this way, growers realised prices which ranged from £25 to £38 per acre—that is as net revenue from the crop, with all expenses deducted.

The Youghal district this year showed a marked increase in the area devoted to early potato growing. Considering that the industry was only started three years ago, it is gratifying to find that the area devoted to it now reaches almost 60 acres. Some excellent plots were moreover grown, and here again the cross-Channel buyers concluded bargains during their visit to the district in May. One lot, sold at this stage, brought £35 per acre, a purely speculative price, however, though afterwards the yield turned out to be so good it might easily have made £5 more. Smaller lots were subsequently sold in this manner at prices ranging from £33 to £41. Amongst these it is interesting to note was a small area grown by a labourer in the garden attached to his cottage. As a reward of his industry he got £9 for the produce of a rood, a compensation which is likely to make other labourers in the district follow the example thus

EARLY POTATO GROWING IN YOUGHAL DISTRICT.



Fig. 1.—Neighbouring Farmers co-operating in the Raising of the Potatoes.



Fig. 2.—Preparing the land for a crop of Swede Turnips, after the Early Potatoes had been raised.



Fig. 3.—Raising the Potatoes on 21st June, 1907.

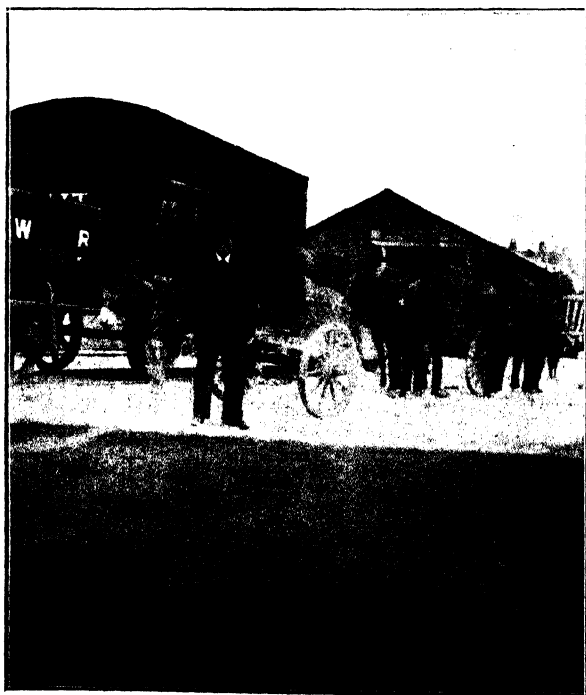


Fig. 4.—Despatching the Potatoes to Market—Youghal
Railway Station.

set. An offer of £32 per acre for a large number of plots was refused by the local growers at this period, though as after events proved this price was at or above their full value. Much variation was observable in the yield of the plots raised and consigned at the normal marketing period, the nett returns per acre ranging from £21 to £35 per acre.

At marketing time growers in the Youghal district were caused considerable anxiety by the difficulty of securing a sufficiency of barrels to despatch their crop. Much of the drawback complained of was due to the action of the growers themselves. Cross-Channel merchants will not send on a stock of barrels a month or six weeks before the date of raising to men who, in the meantime, may dispose of their lots as they are in the field, and consequently cannot consign to them at all. The grower must make up his mind at a sufficient length of time before raising whether he is going to sell in the field or consign. If he makes up his mind definitely on the latter course the merchants will have no hesitation in forwarding all the barrels necessary to pack the crop. It was the hesitation between one mode of selling and the other that caused the difficulty about barrels this year, which, it is to be hoped, will not be further experienced when the means of avoiding it becomes more fully understood by the growers in the Youghal district. Next season arrangements have been made whereby marketing of the early potatoes grown in the neighbourhood will be conducted through the local agricultural co-operative society, and there are good grounds for belief that considerable advantage will be derived from this system. In any case the local growers are to be commended for their determination to make the most of the self-reliant organisation which has proved so helpful to them in other directions, and which may be anticipated to render them further service in securing the most favourable conditions for marketing the increasing quantities of early potatoes that are likely to be raised in the district.

In County Wexford the experimental plots instituted by the Depart-

Plots in County Wexford.

ment, with a view towards fostering the industry, are confined to a district known as Ballyrangans, close to Kilmore. Bridgetown, a station on the new railway connection between Waterford and Rosslare Pier, is a convenient centre for loading the produce and ensures a quick means of transit to London or any of the leading English markets. Considerable interest attached to the venture of the growers in this district this year, inasmuch as the first opportunity was afforded of testing the value of the new route to cross-Channel markets *via* Rosslare and Fishguard.

Unquestionably, the railway facilities, which have now brought the district into such close touch with England, will largely contribute to foster the industry, more especially as there is here a large area of soil especially suitable for the successful cultivation of early potatoes. From whatever cause, however, actual trial has shown that the district is not so early as either Clonakilty or Youghal; none the less, the prevailing soil has proved capable of raising really fine crops. Digging began this year about 1st July and proceeded to 12th July. Birmingham was chosen as the marketing centre, and, according to a special arrangement with the Great Southern and Western Railway Company, whereby up to 20 tons daily could be despatched by passenger train, the facilities for putting the crop expeditiously in the market were admirable. Unluckily, Birmingham proved to be a bad market just at this period of the season, as better returns might have been obtained had some of the crop been consigned to Liverpool. With a view to test the efficiency of the new route, Birmingham had been definitely decided on beforehand, and as the barrels for shipping the crop had been sent on by salesmen there, no choice in the place of despatch was really left when the tubers had been raised. The quality of the potatoes sent from this district was excellent, and the different plots grown were of high average merit. The financial returns varied between £20 to £40 an acre, though it is fair to say that in this latter instance part of the crop was marketed in Liverpool.

Birmingham, as a market for early potatoes in the opening week of July, suffers from this drawback, so far as Irish growers are concerned, that it is very convenient to the great potato-raising districts of Lincolnshire, and growers from that area have begun by this time to pour their stuff into the fine market which the midland capital affords. This notwithstanding, the Birmingham potato merchants who received the consignments from the Kilmore centre were thoroughly satisfied with the quality of the tubers forwarded, and the manner in which the barrels were packed and sent across. Another year they have expressed the hope of obtaining a further supply from the same district.

In County Sligo a number of small plots were again successfully grown this year, and the produce found a satisfactory market in Glasgow. The largest area, however, as in other years, was that grown at

County Sligo Results.

Lissadell, by Sir Josslyn Gore-Booth, Bart., under the direction of his agent, Mr. J. A. Cooper. Mr. Cooper has kindly supplied the following particulars regarding the results obtained, and has furnished some statistical returns which illustrate the fluctuations both in yield and price that are certain to occur from year to year.

“As in previous years, I send you herewith particulars of our **Early Potato Growing in 1907.** In view of all my

Lissadell Early Potatoes, 1907.

previous reports I do not consider it necessary this year to give details of the crop of each particular variety and field. Our growing each year since we started in 1902 has proved to us that Ninetyfold was our best all-round potato both for earliness and yield. For quality alone Duke of York beats it, whilst Epicure is a good cropper, and is in demand in some districts. A good many of our potatoes suffered from frost on 17th May, and also from being twice cut down by storms. May Queen, Milecross Early, and Kate Henderson did not do well with us this year, the yield from $3\frac{1}{2}$ acres of these being about seven tons; but these suffered more from the wind than the others. This, however, brings down our average yield and average per acre.

“The total results of our growing were as follows:—

—				Acre (Statute).	Yield.	Gross Receipts.	Expenses referred to.	Net Receipts.
				A. R. P.	T. C. Q.	£ s. d.	£ s. d.	£ s. d.
Farm.	...	...	...	14 2 22	*50 15 1	338 1 1	51 18 11	286 2 2
Garden.	...	...	...	0 0 30	1 19 2	12 18 0	0 3 6	12 14 6
Forest.	...	..	...	0 1 0	2 16 1	13 13 9	4 0 11	9 12 10
				15 0 12	55 11 0	364 12 10	56 3 4	308 9 6

* This does not include 8 tons 13 cwt. 1 qr. kept for seed.

“The expenses referred to above are for marketing the crop, freights outward and on returned empties, deductions by salesmen for portorage, commission, &c., also telegrams and stamps. These figures do not include the cost of tillage, *i.e.*, seed, labour, manures, carting, &c. This shows an average price per ton of £6 11s. 3d., and taking the portion of seed referred to into consideration at £4 per ton, it shows an average return of £26 per statute acre gross, with an average yield of 4 tons 5 cwt. per statute acre. The difference in the expenses as between garden and forest in the above return is accounted for by the fact that the yield in garden was marketed through local agents. Immediately after the crop of potatoes was dug rape, turnips and cabbage were sown, and the land also came in well for planting daffodils.

‘I think it might be of interest to show in a summarised form the results of our growing for the past five years. We started with a statute acre in 1902, but I have omitted the figures for that year as I

do not consider them reliable :—

Year.	Com- menced digging on	Total area dug for sale (Statute).	Yield.			Gross Receipts.	Average received per ton (gross).	Average Return per Statute (gross).	Average Yield per Statute acre.
			A. R. F.	T. C. Q. L.B.					
1903.	June 9th.	2 3 39	15 12 1 21		£ s. d.	£ s. d.	£ s. d.		T. C. Q
1904.	" 7th.	4 3 5	22 3 1 0		159 14 4	10 0 0	33 0 0		5 4 0
1905.	" 13th.	5 2 20	34 18 2 7		181 15 1	8 4 0	38 0 0		4 12 0
1906.	" 23rd.	4 2 21	21 17 3 21		230 11 5	6 12 0	41 0 0		6 4 0
1907.	" 11th.	15 0 12	55 11 0 0		148 10 4	6 15 0	30 0 0		4 14 0
					364 12 10	6 11 3	+26 0 0		4 5 0

* 8 tons 13 cwt. 1 qr. Seed.

† Including Seed taken at £4 per ton.

"It will be noted that we dug and sold a much larger quantity in 1907 than in any previous year. Apart from the fact that our potatoes of course are now much better known, part of this increase is caused by the fact that we were able this year to sell our potatoes in Glasgow after Ayrshires had started, and in competition with them. Last year after Ayrshires had started we could not get a potato into Glasgow, as mentioned in my report in the Department's *Journal* for October, 1906 (Vol. VII., No. 1, page 11)."

The Rush district of Co. Dublin, which has long enjoyed a reputation for successful early potato-growing, suffered this year considerably from the effects of frost and gales. A visit to the district in the month of June showed that the crop did not look nearly so vigorous and promising as usual: it raised much better, notwithstanding, than could have been anticipated, and Co. Dublin growers can, in consequence, claim to have had a very successful season. Familiarity with the boxing system, owing to its necessity for early potato cultivation, has made the practice almost universal among the farmers of the metropolitan county, and there are few growers who do not now acknowledge the advantage which this method of treating their main crop varieties possesses over the old custom of planting out sets in the drills in the month of February. One leading grower in the Rush district this year sold his crop of 10 acres in the field to a Scotch merchant at the rate of £30 per acre, and in return the latter largely employed girl workers from Achill Island when the tubers were being raised and despatched to market.

M. G. WALLACE.

POTATO BLIGHT.

DIGGING THE CROP.

The Department have observed with much satisfaction the response to the efforts made for the encouragement of potato spraying. Very marked results have been obtained from spraying during the past season, and there is no doubt that if the conditions had been more favourable for the growth of the potato crop the results would have been still better. Notwithstanding the late season and the early appearance of blight, there can be no question that a large proportion of the potato crop in the West has been saved from total failure by the operation of spraying.

Spraying alone is not, however, sufficient to secure a good yield of sound potatoes. Potato Blight, as is well known, first attacks the foliage of the plants, with the result that the leaves and stems become black and die, and all growth ceases. Spraying is carried out with the object of preventing the development of the disease on the foliage, and thus prolonging growth for at least the normal period, and until tubers are fully grown. This object can be achieved without difficulty in most seasons.

There still remains the danger of the potatoes becoming diseased and rotting either before or after they are lifted. This danger arises from the spores of the disease passing from the decayed foliage through the soil to the tubers, which quickly become affected with the disease. The spores of the disease pass more readily through in wet weather and this may be regarded as one of the causes of potatoes decaying in the ground in wet seasons and in wet soils.

When the potato haulms have become black, and all green has disappeared, further growth of tubers will not take place, and the crop should, accordingly, be dug without delay. No good can result from leaving the crop in the ground, and every day the crop remains undug increases the loss from potatoes turning "black." This is especially the case in such a season as the present.

Farmers, therefore, are urged to dig their potatoes without delay, as it is the only means of preventing the entire crop from becoming diseased.

When the crop is lifted the potatoes should be carefully sorted, the sound potatoes should be stored separately, and any that are affected with disease should be put aside for consumption by pigs or poultry.

The potatoes may be stored either in houses or in pits. If they are pitted, they should be covered only with straw or dry rushes until they are quite dry, and all likelihood of heating has passed, then the straw should be covered with a layer of soil about six inches deep, but provision should be made for ventilation by fixing small bundles of straw through the soil and at intervals along the top of the pit.

The pits should be situated in a dry place and away from trees, and should not be more than two and a-half feet wide, nor should the ground be hollowed out more than six inches deep when making the pit.

On no account should potato haulms be used for covering either the potatoes or the pits.

TECHNICAL INSTRUCTION IN IRELAND.

[*.* *The following is the third of a short series of articles to appear in succeeding issues of the Journal on some recently erected Technical Schools in Ireland. These descriptive articles relate to centres differing widely in population and needs, and it is believed that they will be of interest and value in view of future developments in towns in which permanent buildings have not yet been provided. The first article dealt with the Belfast Technical Institute; the second dealt with the Technical School, Ballymoney, a school in a small town of some 3,000 inhabitants.**]

TECHNICAL INSTRUCTION IN WATERFORD CITY.

By B. O'SHAUGHNESSY, A.R.C.Sc. (London), A.I.C.,

Secretary and Principal, Central Technical Institute, Waterford.

PART I.—HISTORY.

Though the purpose of this article is to give a description of the Central Technical Institute, Waterford, and an

Prefatory Note. account of the Scheme of Technical Instruction in operation there, with its aims and particular local adaptation, it may not prove uninteresting to readers if prefaced by a history not only of the School, but of the early efforts of the Committee to bring about its establishment.

The population of Waterford, as shown by the 1901 Census, is 27,000, and being a County Borough its Municipal affairs are controlled by a Corporation.

In accordance with the provisions and regulations of the Agriculture and Technical Instruction (Ireland) Act, 1899, which became operative on April 1st, 1900, the Corporation appointed a committee to draw up and put into operation a Scheme of Technical Instruction suitable to the city's needs and requirements.

Though the School of Art had already been established many years, the other departments of technical education had received no attention, and the necessity for the establishment of a Scheme to supply this want was evident at the time of the coming into operation of the Act.

* See issues of Department's *Journal* for April, 1907, Vol. VII., No. 3, p. 457, and for July, 1907, Vol. VII., No. 4, p. 652.

Almost from its inception, the idea uppermost in the minds of the members of the County Borough of Waterford Technical Instruction Committee was that at the earliest possible opportunity a Technical Institute should be erected where the work of technical education of the city might be centralised and carried on under their own direct management.

The project was beset with many difficulties, and as a first step towards fulfilling its functions, the Committee decided in January, 1901, to take over the old School of Art from its Committee of Management and adopted a scheme whereby funds were to be supplied to various local educational establishments for equipment for technical instruction. This did not, however, meet the serious difficulty of providing evening instruction in other than art subjects.

Accordingly, at a special meeting held on September 4th, 1901, the Committee resolved—"That while we see no reason to change our views as to the necessity for providing a Central Technical School for the city at the earliest possible moment, we think and resolve that for the present, the needs of the male population (men and boys) should be met by handing over the work of technical education to the Christian Brothers of Mount Sion, and for the female population, by taking and fitting up a separate house for their advanced education, day and evening."

Having previously ascertained that the Christian Brothers were willing to take over the work of Evening Technical Instruction if included in the Scheme for the distribution of grants, the Committee made an arrangement to the effect that the Christian Brothers, in return for their services, should receive an annual capitation grant as well as grants earned and fees paid.

The difficulty was thus temporarily disposed of so far as science and commercial subjects were concerned.

To provide for the instruction of the female section of the community the Committee, as had been resolved, took a house, afterwards known as the Technical Institute, situated in John's-avenue.

The yearly rental of this house was £35 and a considerable sum was spent on renovating and fitting the building, which was opened on January 20th, 1902.

In order to effectively operate the Scheme in this Section, a Committee of Ladies was formed, and they rendered most valuable assistance to the Technical Instruction Committee.

CENTRAL TECHNICAL INSTITUTE. WATERFORD.

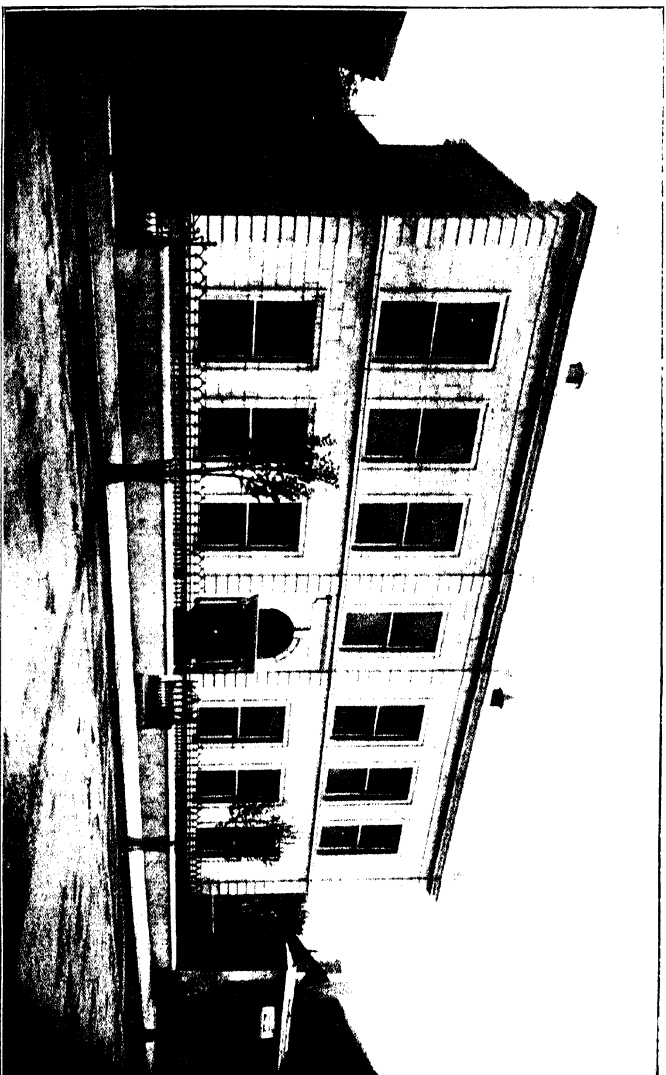


Fig. 1.—Front Elevation of the Building.

CENTRAL TECHNICAL INSTITUTE. WATERFORD.

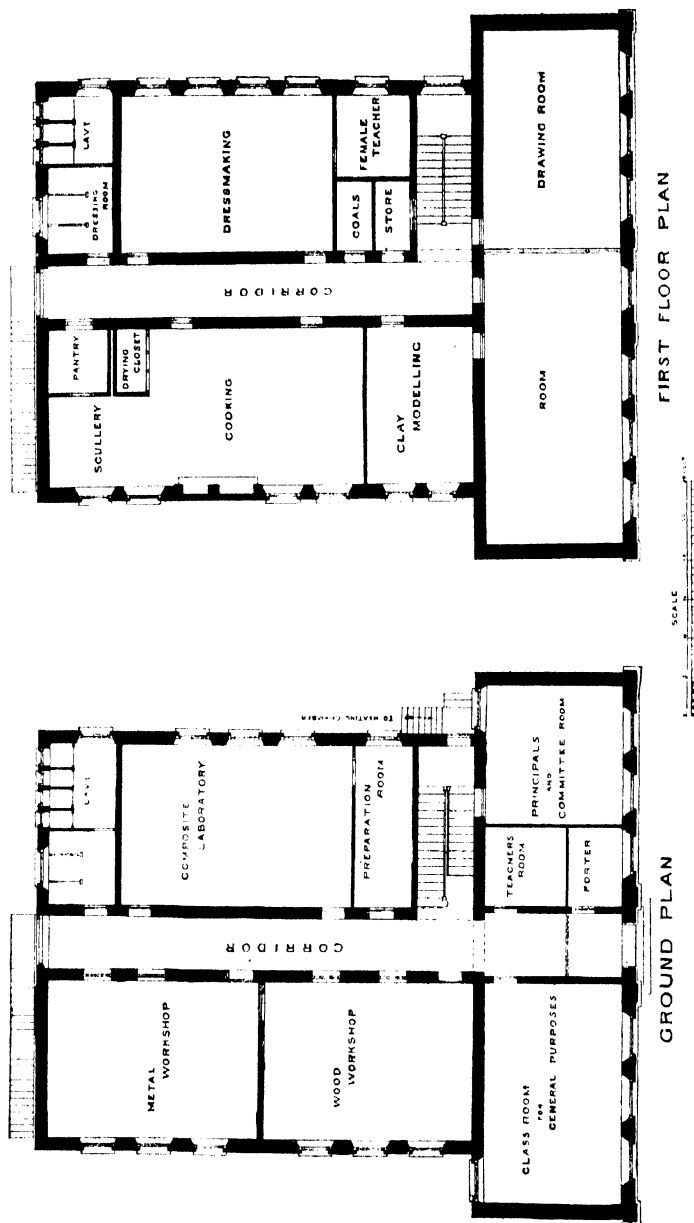


Fig. 2.—Ground and First Floor Plan.

The text of the resolution given above shows that it was clearly understood that all these arrangements were of a purely temporary character, and immediately they were carried out attention was directed to the proposals for erecting a Central Technical Institute.

Several Special Meetings were held, at which much valuable assistance and advice was given to the Committee by officials of the Department; and after investigations covering a period of some months, the site was decided upon and the interests of landlord and tenant bought out for £750 and £450 respectively. Of these amounts the Committee had £700 available, and the sanction of the Local Government Board was asked to borrow the £500 required. This money was eventually obtained from the Directors of the National Bank.

Subsequently, on May 27th, 1904, an architect was appointed at the usual remuneration of 5 per cent. on the contract, and instructed to prepare plans for a building, which, inclusive of Architect Fees, Clerk of Works, Salary, etc., would not exceed £4,000 in cost.

The plans first submitted could not be entertained by the Committee, as the cost of the building, etc., approximated to £5,000, and it was thought that as a consequence of the difficulty in planning a building to accommodate the whole of the Sections of the School, it would be necessary to continue the Art Department in the old School of Art.

Eventually this difficulty was overcome, and in February, 1905, plans for a building were agreed upon, which, whilst providing full accommodation for all the work of the Scheme, would not exceed in cost £4,000.

Throughout this period the Committee had made application to various bodies for a loan of £5,000 to enable them to carry on the work. The Board of Works informed the Committee that the borrowing powers of the Corporation had already been exceeded, and, consequently, they could not provide the money. The Banks applied to said they could not regard a loan under the conditions asked for by the Committee, *i.e.*, repayable by a forty years' sinking fund, as a Banking transaction. Subsequently the Directors of the National Bank granted the loan, but on the distinct understanding that the mortgages would be transferred to the Board of Works when security could be given to that body by the Corporation. To effect this a clause was inserted in the Waterford Bridge Act considerably increasing the borrowing powers of the Corporation, and in April, 1907, the transference of the loan and mortgages from the National Bank to the Board of Works was effected.

Anticipating the successful issue of their negotiations for the loan, the Committee had considered tenders for the erection of the building, and that of Mr. P. Costen, of Waterside, Waterford, was accepted.

On November 14th, 1905, the Most Rev. Dr. Sheehan, the Chairman of the Committee, was authorised to sign the Contract for the erection of the Central Technical Institute, and the building was immediately commenced.

The Heating Contract for £207 10s. was later agreed upon, and also part of the furnishing and equipping of the laboratory and wood workshop for £198.

£1,000 had been set aside for furnishing and equipping, and at this juncture it was decided that no further expenditure on furnishing or equipping be incurred until the Principal had been appointed.

The appointment of Principal was made in July, 1906, the duties of the post being to act as Head Master and Organising Secretary to the Committee and carry out generally the details of the Scheme.

The Principal also undertook the direction of furnishing and equipping the new Institute.

PART II.—DESCRIPTION OF THE BUILDING AND EQUIPMENT.

The new Institute is a two-storied building—block plans of the two floors (see Fig. 2) are given, and also a photograph of the front elevation (see Fig. 1), the latter including a perspective view of the north side.

The building faces on to Parnell-street—a continuation of the Mall—one of the principal thoroughfares of the city.

A schedule of the total cost of the building, &c., is set out below :—

	£	s.	d.
Site,	1,269	0	0
Original Contract,	3,283	0	0
Extra for stone front,	500	0	0
Extras,	200	0	0
Architect fees,	217	10	0
Clerk of Works' payment,	111	0	0
Heating Contract,	207	10	0

The front of the building is classic in design, and built with chiselled limestone, from the quarries of Messrs. Collis of Kilkenny. The superstructure is of Waterford brick, and wherever possible, material of Irish manufacture was used. Drinagh Wexford cement was used, and slates from the Killaloe Quarries.

CENTRAL TECHNICAL INSTITUTE, WATERFORD.

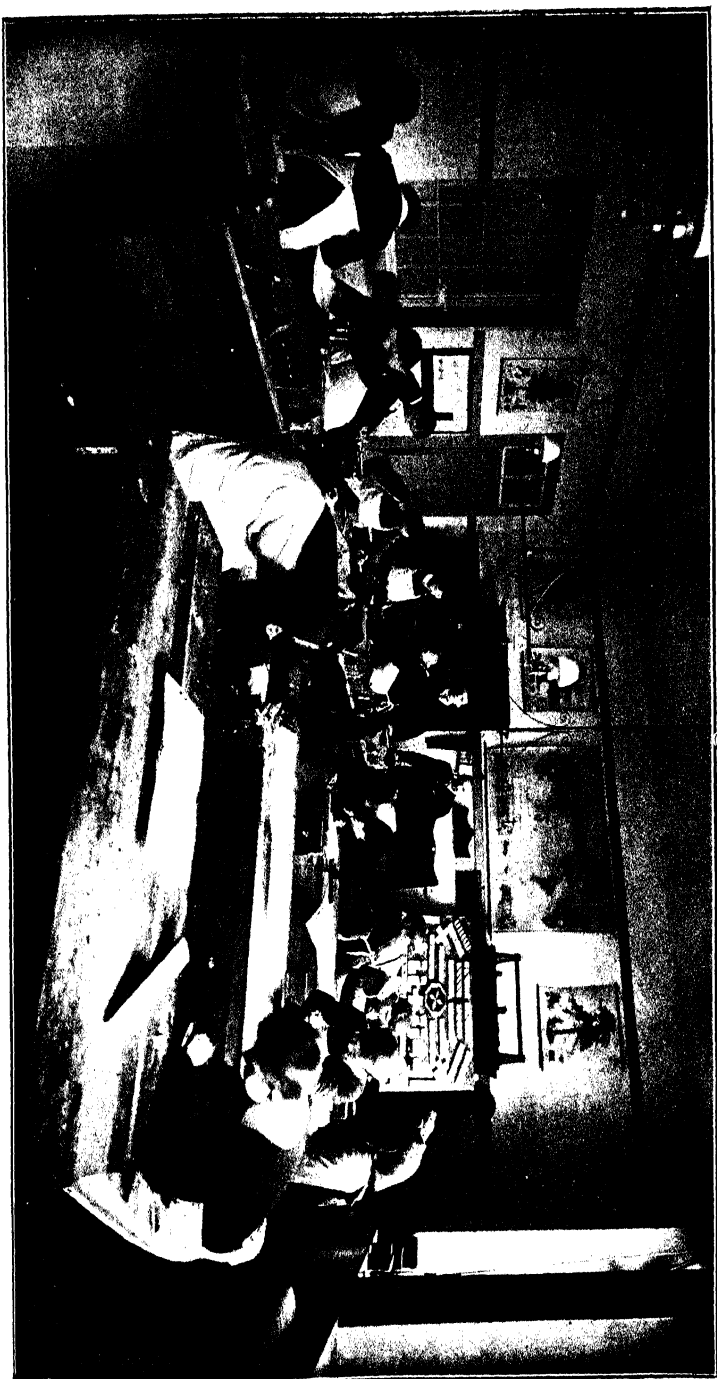


Fig 3.—Woodwork Class (Day Preparatory School)

CENTRAL TECHNICAL INSTITUTE. WATERFORD.

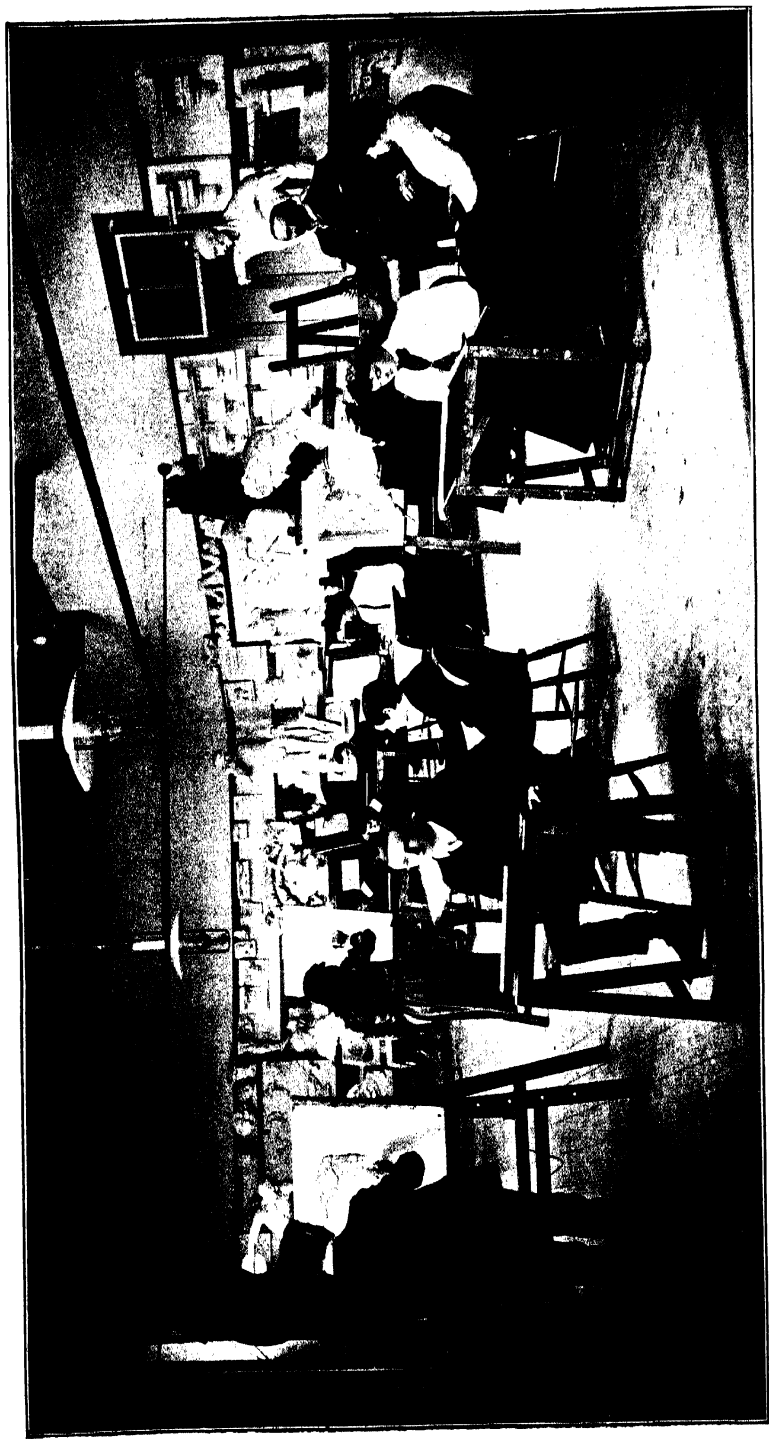


Fig. 4.—Day Art Class.

As will be seen from the plan of the ground floor, this division is made up of the following rooms :—

	Floor Space.
General Class Room,	550 square feet.
Wood Workshop,	620 „
Metal Workshop,	620 „
Composite Laboratory,	680 „
Preparation Room,	160 „
Principal's and Administration Room,	380 „
Teacher's Room,	95 „
Porter's Room, Lavatory, &c.,	225 „
Corridor,	700 „

The first floor is made up of :—

	Floor Space.
General Art Room,	556 square feet.
Art Class Room,	721 „
Clay Modelling Room,	310 „
Large room devoted to Cookery and Laundry, with Pantry, &c.,	910 „
Dressmaking,	646 „
Teacher's Room,	110 „
Lavatories, Store, &c.,	250 „
Corridor,	390 „

Since all the rooms open into the corridors, there is no interference during movements of pupils from one part of the school to another.

A special feature of the upper storey is the glass roof covering the whole of the central corridor and one side of the General Art Room, which are glazed with the Haywood combination system of glazing.

The system of heating is the low-pressure hot water installation with radiators ; this, after one winter's test, has been found to work admirably.

The Boyle Natural system of ventilating is the one employed here.

One thousand pounds of the Committee's funds had been set aside for furnishing and equipping the new Institute.

Furnishing and Equipping. With so small a sum at disposal for this work, great care had to be exercised in allocating portions to the various Departments. The whole of the work was given by tender.

The contracts were mostly given to local firms.

The total expense actually incurred under this head, including initial provision of class materials, was £1,090, distributed as follows :—

Principal's Office and Committee Room. £70

This amount covers cost of roll-top desk, large table, 2 dozen bentwood chairs, books, office requirements, clock, stationery, &c.

Woodwork Room (see Fig. 3). £100

This room is fitted with ten manual benches, with Parkinson's patent grip vices and eccentric stop adjusters, drawing-board press, museum cupboard, stock press, work cupboard, tool racks, &c.

Art Department (see Fig. 4). £90

This Department when taken over by the Committee was well equipped with a large number of excellent plaster casts, models, and furniture.

Metal-work Room. £124

Provision is here made for eighteen students. The benches are fitted with patent instantaneous grip vices ; also provided are drilling machine, screw-cutting lathe, Hoffman shears, smithy forge, brazing forge, anvils, &c.

Composite Laboratory (see Fig. 5). £345

This laboratory makes provision for twenty students, and is fitted with chemical benches, made in pitch pine, teak topped with most modern fittings, demonstration bench, lantern bracket and sheet, tables for blowpipe and muffle furnace, fume closet, slate slabs, counterpoised blackboards, preparation bench, pitch-pine desks, chest of drawers, nest of shelves, balance supports, large press, stools, &c., also chemical and physical apparatus.

Commercial Department (see Fig. 6). £100

The fittings include museum cases, sliding blackboard, 40 folding desks, typewriters, duplicators, maps, books, &c.

Domestic Economy Department (see Figs. 7 and 8). £115

This Department is fitted with an Eagle close fire-range, copper boiler and cylinder, copper fittings, gas stove for heating irons, gas oven, &c., four teakwood laundry troughs, wash-up sink, dressers, plate racks, meat safe, tables, pantry and kitchen utensils, nest of shelves, teakwood drying racks, drying chamber, large and small chests of drawers, counterpoised sliding black-board, &c.

By the expenditure of the above amount, the School has been

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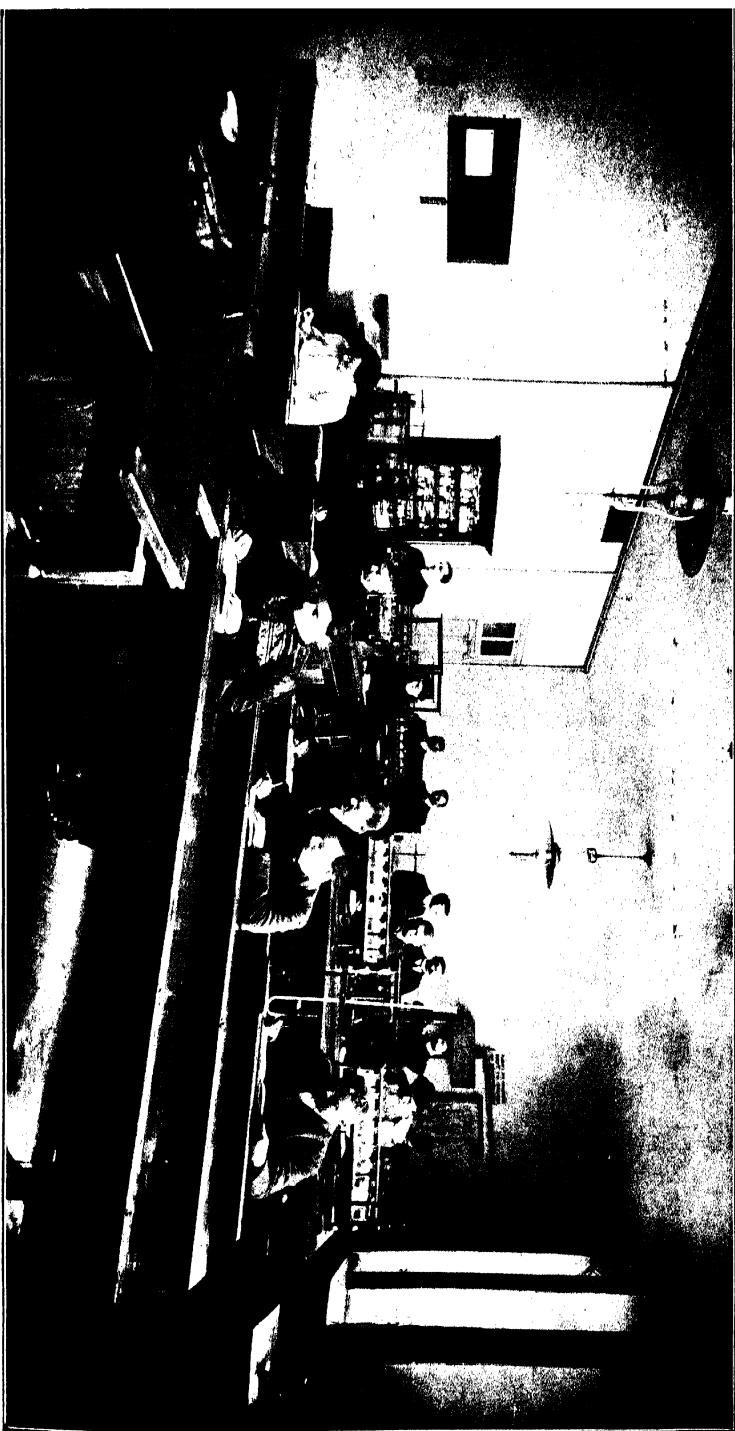


Fig. 5.—Science Class (National Teachers).

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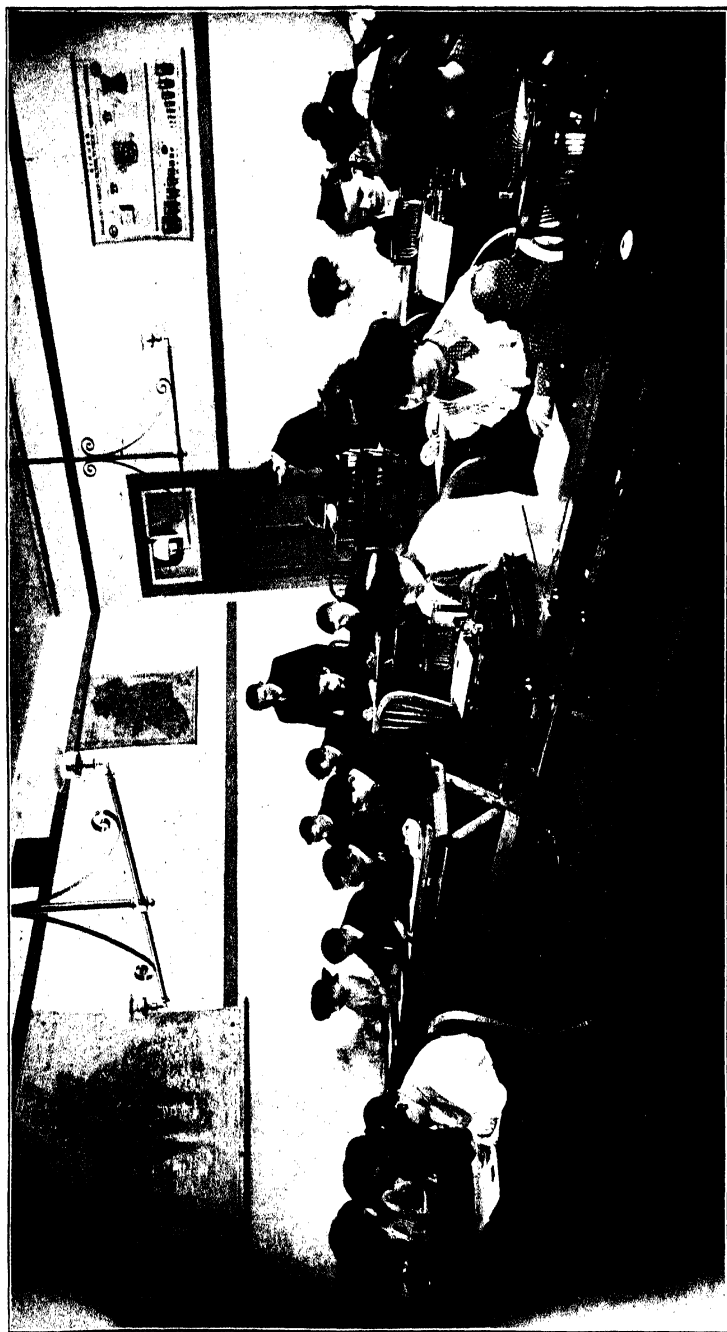


Fig. 6. — Commercial Class.

equipped with additional apparatus, and as a consequence is now one of the best schools of its kind in the South of Ireland.

The additional apparatus purchased by the Committee is as follows :—A very good collection of plaster casts, trestles, easels, adjustable desks (20 imperial size and 20 half imperial), roof blinds, clay-modelling tables (2), 12 hinged and adjustable blackboards for blackboard drawing, &c.

General Fittings.—These cost approximately £150

And include double-dialled clock in centre of hall, gas fittings, window screens and blinds, linoleum, school chairs, teacher's desks, notice boards, general woodwork, requirements for cleaning, mats, &c.

The Staff of the Institute consists of :—

	The Principal.
Staff of the Institute.	Commercial Instructor.
	Building Trades and Manual Instructor.
	Assistant Science Master.
	Art Master.
	Assistant Art Master.
	Domestic Economy Instructresses (two).

This is to be supplemented next Session by an Evening Teacher and a Physical Drill Instructor.

Caretaker.

Laboratory Attendant.

Female Attendant.

In the strict sense of the word Waterford is not a manufacturing town. A large number of industries are carried on, but to a small extent. These include :—
Waterford, Industrial and Commercial. Bacon curing, building trades, flour milling, boot and shoe manufacture, brick making, glass bottle making, monumental carving, printing and bookbinding, brewing, bottling stores, cabinet making, manure manufacture, bread baking, motor works, cycle making, timber yards, iron foundries, etc.

A number of large grain stores, shops, and business houses, give employment to many persons, as also do the Railway and Shipping Offices and Works.

“Waterford is more correctly described as a distributing centre for a considerable portion of the South and South-East of Ireland.

“There is a very large cross-Channel traffic with England, and trade with foreign ports as well, in grain and timber.”

PART III.—THE WORKING OF THE INSTITUTE.

A Scheme of Technical Instruction to meet with the requirements of a people so variously employed must of necessity be of a very general character, and would have to take account in large degree of the section of the Community engaged in clerical and similar occupations.

Some account has already been given of the difficulties with which the Committee had to contend in endeavouring to operate a suitable scheme, but a truer conception of the scope of the scheme most suited to the needs of the city, and which it has only been possible to establish since the erection and occupation of the Central Technical Institute, may be gained by following an account of the scheme at present in operation.

A Day Trades Preparatory School for boys between the ages of 13 and 15 years has been successfully established. The Art Department has been registered as a School of Art, and a National Teachers Class in Experimental Science has been conducted and has proved very successful.

The Evening Class Subjects have been systematically grouped and brought into line with the regulations of the Department's new programme. Economy of time of both Staff and Students has thus been effected, combined with an increased efficiency.

Set out below is a full list of the subjects included in the Scheme. Well over 550 individual Students have attended the Institute during the Session just closed. Some idea of the success of the undertaking may be gained by reference to the figures showing the class entries in each subject which make a total of close upon 1,600, and also the number of students making attendances covering 10 hours and upwards in each, the total of these approximating to 950.

In view of what has been said of the industries of Waterford, and having regard to the occupations of the students attending the classes, the general character of many of the latter with reference to their industrial constitution requires no explanation. It is interesting to note, however, that the Building Trades Course was made up entirely of Trade Students, *i.e.*, Architects' assistants, Builders' apprentices, *etc.*, whilst some 15 of those attending the Chemical Trades Course were engaged in professions and trades which could be strictly classified under that head.

CENTRAL TECHNICAL INSTITUTE, WATERFORD.



FIG. 7.—Cookery Class.

CENTRAL TECHNICAL INSTITUTE, WATERFORD

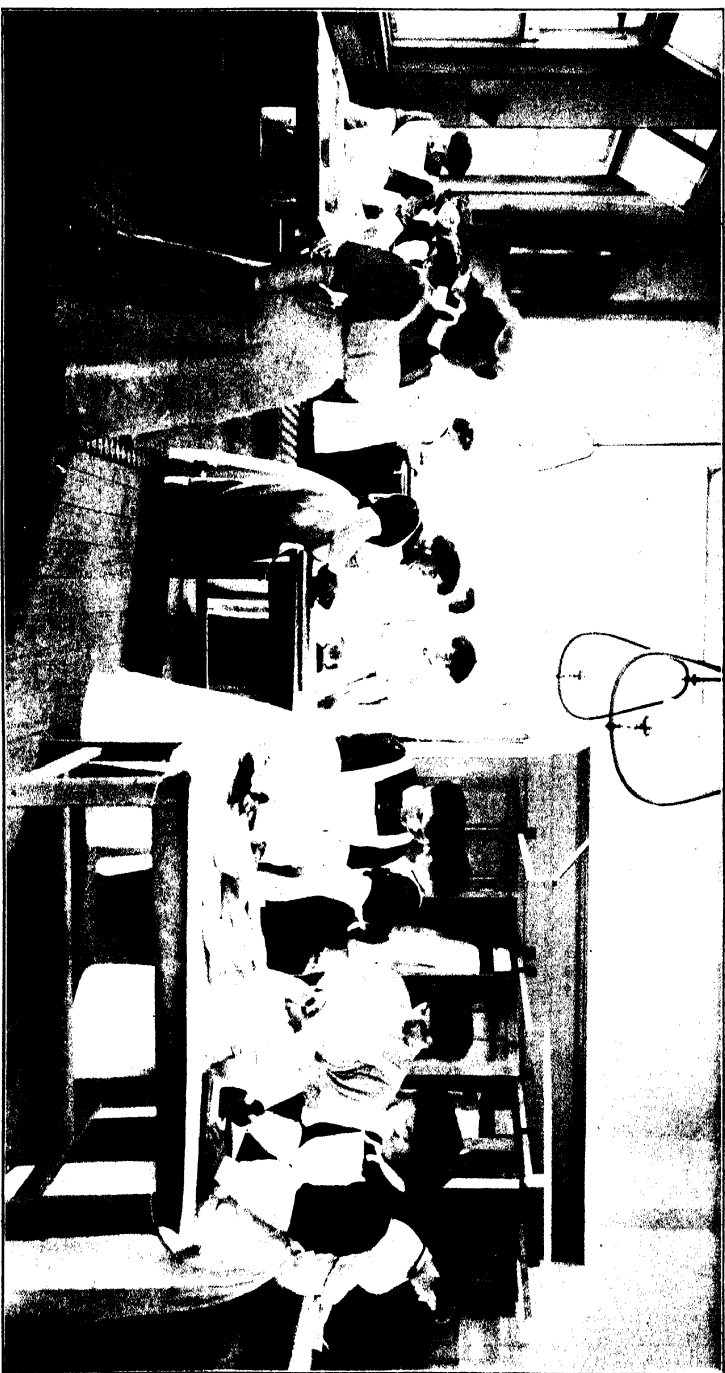


Fig. 8.—Laundry Class.

DAY DIVISION.

	Number on Roll.	Students making 10 attendances or over.
TRADES PREPARATORY SCHOOL,	23	19
ART CLASSES GENERAL,	11	10
DOMESTIC ECONOMY CLASSES:—		
High Class Cookery,	62	51
Dressmaking,	22	21
Plain Needlework,	15	6
Laundry,	12	7
TEACHERS' CLASS in Experimental Science.	26	18

EVENING DIVISION.

	Number on Roll.	Students making 10 attendances or over.
CHEMICAL TRADES COURSE:—		
1st Year.—Theoretical, Inorganic and Practical Chemistry, ..	24	16
Sound Light and Heat, ...	21	14
Mathematics,	25	10
2nd Year.—Inorganic Chemistry, ...	8	5
PREPARATORY COURSE:—		
English (2 Classes),	83	43
Mathematics,	82	43
Elementary Science,	84	41
Drawing,	78	31
BUILDING TRADES COURSE —		
Practical, Plane and Solid Geometry, and Workshop Arithmetic,	29	22
Building Construction,	26	24
Carpentry and Joinery,	26	19
Manual Training—Wood Work, ...	19	14
Do., Metal Work,	6	3
COMMERCIAL CLASSES:—		
1st Year.—Shorthand (Elementary), ...	66	42
Office Routine,	58	46
Commercial Arithmetic, ...	51	30
2nd Year.—Shorthand (Advanced), ...	17	15
Book-keeping,	28	19
Typewriting,	33	21
French,	16	8

EVENING DIVISION—*continued.*

—	Number on Roll.	Students making 10 attendances or over.
SCHOOL OF ART—		
Geometrical Drawing,	29	21
Freehand do.,	43	27
Model do.,	26	11
Blackboard, do.,	30	19
Modelling in Clay,	21	7
Drawing in Light and Shade,	32	13
Perspective,		7
Drawing from Still Life,	2	2
Drawing from Life,	8	8
Wood Carving,	10	7
Plant Form,	2	2
Design,	2	2
DOMESTIC ECONOMY CLASSES—		
1st Year.—Cookery (2 classes),	132	59
Needlework (2 classes),	119	47
2nd Year.—Cookery (2 classes),	67	54
Dressmaking,	61	44
Laundry,	60	33

The Scheme thus outlined and safely launched is doing excellent work and forms a good nucleus for future development.

In thus realising in good part the fruition of their labours, the Committee and all concerned are to be highly congratulated, and though in the matter of financing the Scheme, they are burdened with an interest and sinking fund of £357 10s. per annum on the £5,500 loan raised for the purposes of erecting and equipping this excellent School; yet, without being unduly optimistic, it may be safely said that there is a bright future before the Central Technical Institute, Waterford.

THE HOME BOTTLING OF FRUIT.

The following instructions and recipes for bottling fruit are intended only for those who desire to preserve fruit in a simple, economical, and satisfactory manner, so that it may be available for home use when similar fresh fruit is not obtainable. It is to be clearly understood that these instructions are *not* intended for those who desire to carry on this work on a commercial scale.

The methods of bottling recommended can be carried out by any intelligent person; most of the utensils required are obtainable in any well-ordered house, the others could usually be hired or purchased at small cost; the bottles, which must be purchased, can be used over and over again. If the instructions given are carefully followed, fruit bottled as directed should keep sound for several years. The bottled fruit may be used either without further cooking, or cooked again in tarts, puddings, &c.

The following utensils are required :—

- (i.) A copper or enamelled iron preserving pan.
- (ii.) A suitable saucepan or pot, about 10 to 12 inches deep, in which bottles of fruit may be boiled in water on a range or open fire; for instance, a fish kettle would suit admirably, but any large flat-bottomed iron pot of sufficient depth and capacity will do.
- (iii.) A false bottom of wire or perforated zinc, cut to fit the saucepan or pot used; this must be kept in the saucepan or pot when these utensils are in use, so that the bottles shall not be in contact with the bottom of the saucepan or pot.
- (iv.) A large wooden ladle or spoon.
- (v.) A glazed ware, or preferably an enamelled iron quart jug with a wide lip.
- (vi.) A large flat enamelled or tinned iron milk pan.
- (vii.) A supply of *pure cane sugar*; beet sugar should not be used for preserving.
- (viii.) A quantity of 26-ounce or 40-ounce vacuum bottles with lacquered metal (not cork) caps, rubber rings, and clips.

The Department understand that these bottles, rings, and clips may be obtained from :—

Messrs. D. Wright and Company, Stranmillis-road, Belfast, or
Messrs. Thomas M'Kenzie and Sons, Limited, 212 Great Brunswick-street, Dublin.

These bottles (in small quantities to suit the small bottler) cost approximately as follows :—

26 ounce size,	.	.	4d.	each.
40 ounce size,	.	.	4½d.	„

The 26 ounce size is usually the most suitable for small households. The bottles may be used for several seasons ; damaged rubbers should not be used again. When bottles have been emptied of their contents, the bottles and rubber rings should be thoroughly cleaned in boiling water, then dried and put away. They should be again thoroughly scalded before use.

(ix.) A stove or grate which will permit of a large saucepan or pot resting thereon ; the bottles, however, may be boiled quite satisfactorily in an iron pot over a turf fire.

(x.) A small weighing machine and a quart measure are desirable.

It is not advisable to add preservatives of any kind, their use is very objectionable and often dangerous, *especially to children*, and is not justified under any circumstances.

The addition of artificial colouring materials is not recommended ; if the fruit is picked in dry weather and immediately preserved, colouring materials are quite unnecessary.

It is highly important that the strictest cleanliness be observed throughout ; the receptacle into which the fruit is first picked, the hands of the picker and preserver, the bottles, caps, and rings, and the preserving pan, must be scrupulously clean and free from taint. Attention to this will do much to prevent failure, and will enhance the value of the finished product. Hard water is preferable to soft water for all bottling purposes ; it is, however, better to boil excessively hard water before use.

As the preserved fruit may be used for tarts, puddings, or for dessert purposes, it is suggested that all fruit be bottled in a syrup, but it is not essential that syrup should be used ; water may be used instead.

Enough syrup for the day's requirements should be prepared each day before commencing bottling. This is made by adding from 2 to 4 lbs. of cane sugar to a gallon of water, according to individual taste, and boiling for 20 minutes in the preserving pan, the scum being removed as it rises to the surface. The syrup when prepared may be poured into the milk pan and covered over until required for use. Any syrup remaining at the end of the day's bottling should be put in bottles and sterilized as described below ; it will then keep until the next lot of fruit is dealt with. If it is not quite clear, it must be reboiled and again skimmed.

The following are short directions for the bottling of the more common fruits and tomatoes :—

Gooseberries.—Any variety except Early Sulphur and Amber is satisfactory for bottling purposes. Varieties should not be mixed, but bottled separately. Green unripe fruit should be selected.

The gooseberries should be topped and tailed, and graded into two sizes, large and small, then washed in a colander or sieve with wide meshes, by pouring cold water over the berries to remove dirt and bits of ends. Fill the bottles with the washed berries and get them down tight by tapping the bottle on a table to settle the fruit.

Different sized fruit should not be mixed in the same bottle. Pour syrup, hot, warm, or cold, over the fruit in the bottle to within half an inch of the top, put on the rubber ring, being careful not to twist it, and then affix the cap with one clip exactly across its centre. It is advisable to sterilize as soon as possible after filling the bottles. When the bottles have been prepared in the manner described, place them on the false bottom in the large saucepan or pot; the bottles must not be allowed to touch each other in the pot. Fill the pot with water so as to completely cover the bottles, place it over the fire and bring quickly to a boil; boil for 10 minutes and then remove the bottles and put them on a table away from draughts, which might cause the bottles to crack. After the bottles have stood thus for 10 minutes, put on a second clip exactly at right angles to the first, pressing the centre of the cap, so as to make the cap slightly concave. Allow to cool for 24 hours, and then remove the clips. If the caps are now firmly attached, and give off a metallic ring when struck, the operation is complete. If the clips are not firmly attached and the rubber ring is twisted, replace the ring correctly, affix the cap and clip as above described, and reboil for two minutes with the next lot of bottles; then finish as before described.

The instructions above given for bottling Gooseberries apply to the bottling of other fruit hereafter referred to, with such modifications as are mentioned.

Strawberries.—One of the most suitable varieties for bottling is "Countess," but small fruit of almost every variety may be bottled. Firm, sound, clean, even-sized berries which are pink ripe should be picked when the fruit is quite dry. The berry should not be touched by the hand when picking. Remove the stems and leaves carefully so as not to injure the fruit, then, if any dirt adheres to them, wash the berries in cold water; when thoroughly drained, the bottles may be

filled and the fruit pressed down very gently avoiding crushing or bruising. Then add the syrup, and treat as gooseberries. The fruit will rise up in the bottle on cooling, but as they are not for sale, this will not matter. The berries from two bottles may, when cold, be put into one, by first draining off the syrup and then sliding the fruit from one bottle into another, the syrup is then added and the bottle again boiled for five minutes and finished off as before. Store the bottles of strawberries when cold in a dry, dark, cool cellar or basement.

Raspberries.—The best variety for bottling is “Superlative” :—

Pick the fruit when pink ripe, and remove the stem and core very carefully, so as not to break up the fruit. Put a wine-glassful of water or syrup in the bottle first, let the fruit slide down into this, filling to within two inches of the top, then fill up with water or syrup. Finish as described for gooseberries, but boil gently.

Both strawberries and raspberries should be bottled immediately after being picked, if kept for any time before bottling much of the flavour and aroma will be lost.

Black Currants.—Use ripe fruit unmixed with green or immature currants. Remove the stems carefully, fill the bottles full of fruit, cover with syrup, and treat as directed for gooseberries.

Red Currants may be bottled in a similar way to Black Currants, except that a little water should be put in the bottle before filling it with fruit, and the boiling must be done very gently.

Bilberries (“*Hurts*” or “*Fraughans*”).—Treat as Black Currants. The syrup should be made in the proportion of 4 lbs. of sugar to each gallon of water. The fruit should be purple black ripe, and free from leaves and dirt.

Blackberries.—Firm, purple black ripe (no red), dry, clean fruit, free from stems, should be picked into chip baskets or punnets to avoid crushing the berries. Put the fruit in pans or crocks in layers, sugaring the fruit at the rate of 1 lb. of castor sugar to 5 lbs. of fruit. Allow to stand for twelve hours, put in bottles and shake well down, add syrup as for gooseberries ; treat as for gooseberries, but keep at a gentle boil for 25 minutes.

Plums.—“*Victorias*” are the best kind for bottling. Pick the plums while green, before they are ripe, remove the stems, prick the ends with a copper point or silver pin or fork before putting the plums in bottles. Press the plums gently down into the bottle and make

them fit in tightly ; add the syrup and treat as gooseberries. Damsons and green gages should be used nearly ripe, otherwise they are treated in a similar manner to Victorias. It is best to let the bottles of stone fruit remain in the pot or saucepan in which they are boiled, to cool down slowly in the water.

Apples.—Each variety should be bottled separately. Pare, cut the apples in quarters, and remove the cores ; when this is done, put the cut portions in a crock of water ; one teaspoonful of alum should be added to each gallon of water in the crock, to keep the apple slices white. When all the apples have been sliced and cored in the manner described, take the slices out of the water with a colander and boil in fresh water for one minute only ; put in bottles, placing the fruit neatly, add cold syrup made with 1lb. of sugar to a gallon of water ; treat as directed for gooseberries.

Windfall apples will bottle well, but the colour is usually of a green tinge when finished.

Pears may be bottled in the same way as apples.

Bottled fruits for home use should be kept in as cool a store as possible ; a temperature of about 35° F. to 40° F. would be ideal. The bottles should not be exposed to bright light ; this applies more especially to soft fruit, such as strawberries and raspberries.

In all cases, so far as possible, avoid touching the fruits with the fingers.

No fruit which is to be bottled should be touched with a steel knife or fork.

To bottle Tomatoes.—The tomatoes should be just ripe, but not over ripe. Remove the stems, wash and dry thoroughly with a clean towel. If sufficiently small, put them in the bottle whole, pressing them down tight. If too large for this cut in half and arrange them neatly in the bottle with a silver pickle fork, the cut side down. Fill the bottle with the tomatoes, and add hard water which has been previously boiled for 10 minutes. Then treat as directed for gooseberries, but boil for 10 minutes.

Copies of this article, in leaflet form (No. 88), may be obtained free of charge, and post free, on application to the Secretary, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion-street, Dublin. Letters of application so addressed need not be stamped.

POULTRY FATTENING.

[* * A Report on the Poultry Fattening Industry in Sussex, with suggestions for establishing a similar industry in Ireland, appeared as an article in the Journal, Vol. IV., No. 4, page 660, and was subsequently issued as one of the Department's leaflets. The article has been revised, as printed below, and deals with the subject more from the point of view of an Irish industry capable of considerable development. Since the publication of the first article the industry has made much progress in Ireland, and a number of Co-operative Societies and private individuals in this country are now successfully engaged in the business of fattening chickens for sale in Great Britain.]

To train men in all branches of the business the Department have established a Poultry Fattening Station at Avondale, Co. Wicklow, and apprentices are now received there as vacancies occur.]

I.—THE SUSSEX CHICKEN INDUSTRY.

In Sussex poultry-fattening is conducted as a special industry. The largest and most successful poultry fatteners do not, as a rule, sub-ordinate the industry to farming or any other occupation. Some fatteners are to be found who combine the rearing of the chickens with the fattening, but the majority do not rear at all. The chickens are collected, usually thrice weekly, either by the fattener himself or by a "higgler" who works for him. Most fatteners have their regular suppliers, and can rely on a constant supply of suitable birds. The industry has, however, developed to such an extent that the number of chickens reared locally does not meet the demand. To supply this want large numbers of chickens are imported from Ireland and Wales. The chickens imported from Ireland are reared chiefly in the counties of Carlow, Kilkenny, Wexford, and Waterford.

The general opinion of the fatteners is that the Irish chickens are inferior in quality and less profitable to fatten than those reared in Sussex. This inferiority appears to be due to the system of rearing adopted in Ireland, and to the age at which the chickens are sold. In Sussex almost the entire rural population of certain districts is engaged in either rearing

chickens or in fattening them, or in both. Consequently, the work is done more thoroughly, and in a more business-like manner, besides, the fattener is able to secure a more regular supply of suitable chickens than if the work was in the hands of fewer people. Another important factor is that the rearers have come to know the class of chickens required for fattening, and they realise that any other is useless. Irish chickens, when fattened, are often much larger than the Sussex chickens, but do not in the early part of the season realise such high prices in the London market. This is because the birds are more matured and the flesh consequently less tender and not so good in quality. To remedy this, the birds should be kept growing from the time they are hatched, and they should, like the Sussex chickens, be large enough to put up for fattening when from ten to twelve weeks old. At the present time many of the chickens received from Irish dealers are not less than four or five months old. In Sussex the chickens are always reared with the object of being fattened, and are fed accordingly. The food consists chiefly of finely ground oats mixed with separated milk from the time they are hatched until they are killed for market; there is no great change when the birds are put up in the coops for the final process of fattening. Thus the process is consistent with the ultimate object, whereas in Ireland the system is entirely different, and it is probable that Indian meal forms the largest portion of the diet.

The industry is very firmly established in Sussex, and many years would elapse before anything approaching it could be developed in Ireland. The chief requirements are :—

1. A suitable breed of fowl, and that to be kept almost exclusively.
2. A general interest in the work, and the consequent maintenance of a steady supply of suitable chickens.
3. Careful management and expert handling of the birds by experienced fatteners.

**Conditions of Success
in Ireland.**

The fact that Irish chickens can be successfully fattened in Sussex is in itself a hopeful sign. So, also, is the fact that the demand for first-class chickens is practically unlimited.

No attempt to start the business should be made unless the class of fowl in the district is suitable. It must be remembered that a reputation for Irish fatted chickens has yet to be established, and no establishment can assist in this direction unless it has a large supply of uniform chickens to work upon. The question of food presents no special

difficulty. Separated milk is generally to be obtained, and oats can be grown everywhere. Great attention must, however, be paid to the grinding of the oats, for which special stones are required.

II.—METHODS OF FATTENING.

The following methods of fattening chickens and their subsequent handling and preparation for market, are not intended solely for poultry fatteners pure and simple, but are suitable for adoption by farmers and others who may desire such information.

Fattening may be described as an artificial process of improving the quantity and quality of the flesh. Not only is the bulk increased but the flesh is ripened, it is more digestible and of finer flavour. Fatted flesh is superior to unfatted, because fat largely takes the place of water in the tissues. While an excessive quantity of fat is not desired, the addition of some fat is necessary, with as much flesh as possible.

During fattening, the bird has to undergo close confinement and heavy feeding, consequently its condition of health is the chief determining factor in respect of the length of time this somewhat unnatural process can be pursued. The period usually averages three weeks, but keen discriminating judgment is required to determine when each bird is finished. Some birds cannot stand the treatment as long as others, and all reach a stage when to continue feeding them means loss; there is no additional gain for the food consumed, in fact, weight is actually lost.

Suitable birds may gain in weight from about $1\frac{1}{2}$ to 3 lbs. during the whole period of fattening. During the first few days birds frequently lose weight, but this is soon remedied; as a rule the greatest gain takes place during the second week.

It is important to have a suitable class of bird for fattening. While all birds fatten, they will not fatten alike, there is considerable difference in this respect, as some fatten more readily than others, and lay on flesh more rapidly. Good health is essential, as a bird requires considerable stamina to thrive in the fattening pen. A quiet temperament is also desirable, and birds possessing wild habits and great

activity will not fatten well ; they also have a disturbing influence on their companions.

The treatment a bird receives during chickenhood has a distinct influence on its subsequent suitability for fattening. A well-nurtured chicken will not only be ready for market much sooner, but will be better able to withstand the strain of fattening than one which has been poorly fed.

It is desirable that a bird should not be more than four months old when put up to fatten.

Usually, the best results are secured with birds possessing a large frame, a long deep body, and a broad breast, a straight keel or breast bone, strong but fine bone, white flesh, skin, legs and feet free from coarseness.

Type of Fowl for Fattening.

English fatteners in the Heathfield and other districts prefer the Sussex breed or crosses, which tend to produce the above type. The indiscriminate use of different pure breeds or various crosses is a mistake, as uniformity of quality cannot be secured therefrom.

Amongst the pure breeds most suitable for table use Dorkings, Sussex, Old English game, Faverolles, and Orpingtons are in the first rank, while Langshans, Plymouth Rocks, and Wyandottes come second. The Indian Game is used for crossing.

A specially constructed shed is not necessary if permanent buildings are available. Barns and sheds are often quite suitable for the purpose, provided proper ventilation can be secured. Quiet surroundings and semi-darkness are advantageous, as freedom from excitement is conducive to better results.

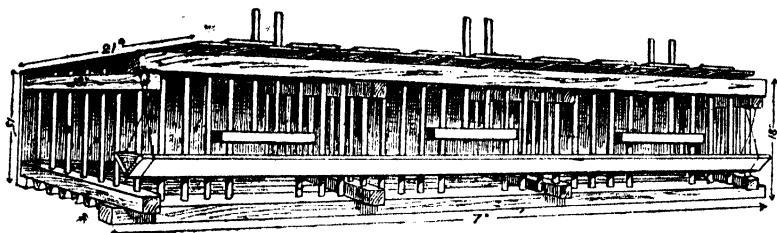
Sheds and Fattening Coops.

An equable temperature is important, and should be as near 60 degrees Fahr. as possible. In a very close atmosphere the birds will not fatten well, nor will they thrive if the shed is cold and draughty, and artificial heat is not recommended. Therefore, the temperature must be regulated by a proper system of ventilation.

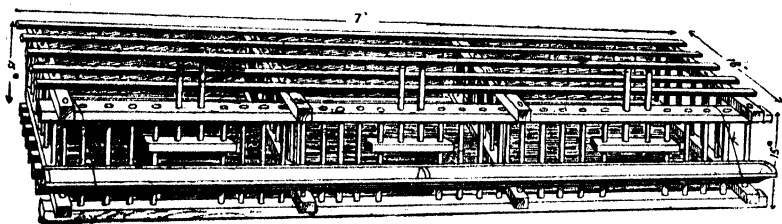
During the milder months of the year the coops may be placed out of doors, provided good shelter is available. For this purpose covered coops are used.

The following are illustrations of Sussex fattening coops.

SUSSEX FATTENING COOPS.



For out-door use, showing back and top boarded.



For in-door use, showing back boarded and top with laths only.

These coops are usually made 7 feet long, 15 inches high, and 18 inches deep, with three divisions, each holding from four to six birds. They are composed of laths fixed one and a half inches apart all over, except in front, where they are about two inches. The laths are placed upright in the front of the coop, and lengthwise in the bottom and top. The bottom laths are usually one inch wide on top, narrowing gradually to half an inch at the bottom, and one inch deep. By this means the manure passes away more easily. The back of the coop is boarded, and when coops are required for outside use the top is boarded also. The coops are placed upon wooden supports, the bottom of the coop being about three feet from the ground. In some establishments, the coops are erected in tiers, but a single row of coops is preferable. A V-shaped trough, consisting of two pieces of board set at an angle, is suspended in front of the coop.

Strict attention should be paid to cleanliness. The shed and coops must be lime-washed periodically, and troughs and all utensils scalded and cleaned regularly. Frequent removal of the manure is also necessary.

As a rule the birds are trough fed for about ten days of the fattening period, and then crammed for the remainder of the time. The failure of the appetite usually determines the commencement of cramming. The food, which is given in a semi-liquid state like thick porridge, is fed from the troughs twice daily. After the birds have been fully satisfied, any food remaining is removed.

When first put up in the coops the birds should be fasted for at least twenty-four hours, to stimulate the appetite; otherwise, they often refuse to eat.

Some fatteners do a considerable trade in half-fatted or trough fed birds. These birds are not, of course, equal to fully-fatted specimens, but show considerable improvement compared with lean chickens. This fact is worth keeping in view, as customers are often to be found who prefer this class of bird, and thus a profitable outlet is provided for birds which may not be altogether suitable for cramming.

Cramming may be carried out in three ways—by hand, by funnel, and by machine. The latter is, however, the method almost universally adopted, as speed is essential when dealing with large numbers of birds. The other two methods require more labour, and are, comparatively speaking, too slow. Hand cramming, although a tedious process, produces finer finish than other methods.

Methods of Cramming. In cramming by hand the food, in the form of a stiff paste, is made into pellets about half an inch thick, and three-quarters of an inch long. The operator, holding the bird firmly between his knees, takes a pellet, dips it in milk, and opening the bird's mouth with his left hand, inserts it, and keeping the neck well extended, by gentle pressure of finger and thumb the food is passed down the gullet into the crop. From twelve to fifteen pellets may be given, according to individual requirements.

When cramming by funnel the food is given in liquid form about the consistency of cream, and the crop is filled by means of a funnel which is passed down the gullet. A special funnel with a smoothly turned end is required for the purpose, so as not to injure the throat. This method is somewhat quicker than cramming by hand.

In cramming by machine the food, having been carefully mixed to a consistency resembling thick cream, is placed in the food reservoir, and the operator, holding the bird firmly under the left arm, draws out the

neck to its full length, and carefully opening the mouth with the finger and thumb of the right hand, quickly inserts the rubber nozzle of the machine down the gullet and into the crop. He then depresses a treadle steadily but gently with the foot, charging the crop with sufficient food. The operation is not difficult, and in expert hands causes little discomfort to the bird. The quantity of food is regulated by keeping one hand on the crop, in which the end of the tube may be felt. Great care should be taken to cease pressure on the treadle the moment the required amount of food has been introduced; it is important to do this before withdrawing the rubber nozzle from the gullet of the bird, to avoid pumping food into the windpipe and thereby causing suffocation of the bird.

It is also important to feel the crop of the bird before cramming, and if the latter is not empty the bird should be returned to the coop unfed to await the next meal.

It is generally recognised that the best results are obtained by feeding with pure ground oats mixed with soured

Selection of Food Stuffs.	skim milk and fat. Other meals, such as barley meal, buckwheat meal, and Indian meal, may be mixed with, or substituted for, ground oats,
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but their use is not recommended where first class results are desired.

Pure ground oats is the nearest approach to a perfect food, and is composed of 15 per cent. albuminoids, 5.5 per cent. fats or oils, 48 per cent. carbo-hydrates. "Sussex ground oats" contains, as a rule, a certain percentage of barley. The Russian oat is chiefly used, as it is drier than the home grown article, and can be more readily ground fine, which is an essential requirement.

The use of milk in conjunction with ground oats, produces that fine quality of flesh, white in colour, which is so desirable. The whiteness is largely due to the phosphates in the solids of the milk. Soured skim milk is usually preferred, and in Sussex it is considered to give profitable returns at a cost of 2d. per gallon.

All successful fatteners insist upon the necessity of using fat. It is generally given when cramming commences, but some fatteners introduce it during the period of trough feeding. Mutton or other good fat costs from 2s. to 3s. per stone, and when clarified may be stored away in barrels. In using fat it is customary to commence with a small quantity, which may be gradually increased up to half an ounce per bird, per day.

In the preparation of the food considerable care is necessary to mix the ingredients thoroughly to the required consistency.

Mixing the Food. As a rule, the meal is mixed with the milk a few hours previous to use. The fat should be separately melted down, and, while liquid, well stirred into the semi-liquid mass of meal and milk.

The use of finely chopped boiled nettles is found to be beneficial to the health of the birds. They may be, together with the liquid in which they have been boiled, mixed in the food.

In cases where fattening by cramming is not adopted, or where the cost of pure ground oats may not be justified, one of the following mixtures may be used :—

**Other Feeding
Mixtures.**

1. Equal parts of ground oats, fine barley meal, and fine Indian meal.

2. Two parts each of ground oats and buckwheat meal, to one part of Indian meal.

3. Equal parts of ground oats, fine barley meal, and fine middlings.

The use of skim milk in all cases is advocated. It should be remembered that Indian meal is very apt to produce yellow greasy fat, which is most objectionable.

III.—PREPARATION FOR MARKET.

In all cases birds should be fasted a full twenty-four hours before killing. This important precaution should not be neglected.

Fasting.

There are two chief methods of killing, viz. :—(1.) by dislocation of the neck; (2.) by bleeding. The first method is by far the most satisfactory, as it is cleanly, speedy, and humane. The mode of operation consists of grasping the legs and wings of the bird in the left hand with the back upwards; the head is held in the right hand with two fingers back of the skull and the comb against the palm. Then the neck should be rapidly but firmly extended to its full length, while the head is suddenly bent backwards, breaking the neck immediately behind the head, and tearing the nerves and tissues. Death is instantaneous, although muscular action may continue for a short time. By keeping the head of the bird downwards the blood flows towards the head and gathers in the neck.

Killing by bleeding may be effected by palleting or stabbing, or by cutting the throat. For palleting, the bird is

Killing. hung up by the legs, the mouth opened, and a sharp-pointed knife inserted and driven right through the roof of the mouth in an upward direction to the brain. It is usual to allow the bird to hang until the blood has ceased to flow.

The custom of cutting the throat of a bird is an effective method, but is not recommended ; it is not humane, and is most unsightly.

Plucking should be commenced immediately after killing, as while the bird is warm the feathers may be removed

Plucking. with greater ease, and there is less danger of tearing the skin. While the utmost care must be taken in handling the bird to avoid tearing or barking the skin, the process of plucking should be carried out as speedily as possible. A good plucker will kill and pluck twelve birds in an hour. The operator should be seated about twenty inches from the ground—and holding the bird in his left hand by the legs and wings, with the head downwards for the reason already mentioned, he should, with a sharp upward pull, draw the feathers in the opposite direction to which they lie. Usually the thumb and two fingers of the right hand are employed. Most pluckers commence upon the breast, and follow with the back, neck, underparts, wings, legs, and finally the tail. Invariably the bird is plucked clean with the exception of the neck feathers a few inches up from the head, but for certain markets the wing feathers are also left on. Where much plucking is done the feathers should be collected, as when properly saved they should at least pay for the cost of killing and plucking. Where there are many birds of one colour grading the feathers is worth consideration ; white feathers of good quality are more valuable than dark feathers. It is usual to separate the quill feathers of the wings and tail from the finer feathers, when plucking.

The breast bone should not be broken unless the buyer desires it.

After plucking, the small short stubbs or pin feathers have to be removed. This operation is known as stubbing,

Stubbing. and is very tedious. A short blunt knife is generally used for the purpose, and by slipping it under the feather, with the aid of the thumb, the stubbs are extracted.

Singeing then follows for the removal of the long hairs which are to be found over the fowl's body. The bird

Singeing. should be taken in both hands and held by the head and legs and rapidly passed through a clear flame, turning the body over to completely denude it of all hairs. A small heap of lighted straw is mostly used for the purpose, but it is most important to have a clear flame, and extreme care is needed to avoid blackening or scorching of the skin.

Shaping then completes the process of preparation of the bird, and undoubtedly greatly improves its appearance,

Shaping. thereby enhancing its value. Various systems are employed, but the one adopted in Sussex is the most suitable. A shaping-board or trough is used for the purpose, varying in size according to requirements. It is made V-shaped by setting two boards together at an angle of about 45 degrees. These troughs are fitted to uprights, and may be arranged in two or more tiers. A useful size consists of three troughs two and a half feet long, the back board of which is 6 inches wide and the front 5 inches, two uprights 36 inches long and 7 inches wide, and three loose boards 4 inches wide and about half an inch shorter than the troughs. Plain deal three-quarter inch boards should be used.

After the birds have been plucked, etc., the legs are tied loosely together at the hocks so as to permit them to lie flat against the sides of the breast. It is usual to press the stern of the bird against a wall or board to flatten it, and then it is placed breast downwards in the trough, the head hanging over the front. When the trough is full the loose board previously mentioned is laid along the backs of the birds just behind the wings, and heavily weighted. Weights of 56 lbs. are suitable for the purpose, but heavy bricks may also be used. For preference, each trough should contain birds of one size, and they should be packed firmly. The fowls are left in the shaping press till they are quite cold and set.

This system of shaping is chiefly applicable to fatted fowls, and is of little advantage in the case of lean birds. In warm weather the shaping press should be kept in a cool place.

Proper packing is most important, as in order to make the most of the produce it is absolutely essential to put it
Packing and Grading. upon the market in the best possible condition.

Grading of the birds into sizes is recommended. There should not

be a difference of more than half a pound between the birds in any one case. This, if the birds are of even quality, will ensure uniformity, which is very desirable.

For graded birds of the best qualities a wooden non-returnable case to hold one dozen birds in one layer is advocated. It should have ventilation holes all round, and the top should be nailed down.

In Sussex, specially made crates or "pads" are largely used. Some Railway Companies provide hampers for the conveyance of dead poultry.

Firm even packing is most necessary. The case should be completely

Packing.

filled up, to prevent shifting of the contents, and consequent injury to the birds, as the skin is easily barked and bruised. Clean dry straw and white paper comprise the requisite materials. Sufficient straw should be placed in the bottom of the case so as to form a slight rise or cushion down the centre, and this should be covered with the white paper. The birds are then placed, with their sterns to the end of the case, in a double row, and are covered over with paper and as much straw as may be necessary to hold them securely in position. The heads and necks lie down the centre, but a more attractive way is to extend them across so that each head and neck lies to the side of the bird on the opposite side of the case. By placing a piece of folded paper over each head and neck and under each body, the former will be completely hidden from view.

Packing should not take place until the birds are quite cold.

Cases of graded birds should be branded with the initials of the sender and the grade, thus, "A.B., 1 doz. 4½-5 lbs.

London is generally recognised as the premier market in the United

Marketing.

Kingdom for fatted poultry. Fatteners usually send their consignments to salesmen in the Leadenhall and Central Markets. In order to obtain the best prices the sender should guard against variation in size and quality of the produce.

London is probably the most profitable outlet of birds of the finest quality weighing 5 lbs. and upwards, and the market is apparently never overstocked with this class of bird. Smaller birds, and birds of inferior quality, are often a drug on the market, and are cleared at prices that can leave no margin of profit to the fatterer. These smaller birds, of good quality, might be sold at paying prices in English or Scotch

cities which are nearer to Ireland than London, and in which the demand for good chickens, 3 lbs. to 5 lbs. in weight, is rarely over supplied.

It must not be assumed that chickens can always be bought at current rates in Ireland, crammed, and sold at a profit. On the contrary, in certain months of the year, the work must result in loss, and during a plentiful game season this loss may be very considerable. From a profit and loss standpoint the period from the middle of September to the middle of December is the most difficult time of the year for the crammer ; it is not easy to stop the work during these months and take it up again when prospects improve, neither is it possible to have at all times certain orders at hand when chickens are ready for killing. Those who are able to secure advance orders are in a position to regulate the buying price of the birds so as to cover all expenses and leave a margin of profit. This ideal may be worked for, although it is not easy to attain.

Copies of this article in leaflet form (No. 49) may be obtained free of charge, and post free, on application to the Secretary, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion-street, Dublin. Letters of application so addressed need not be stamped.

THE CULTIVATION OF FLAX IN BELGIUM AND HOLLAND.

REPORT OF THE DEPUTATION SENT TO BELGIUM AND HOLLAND TO
STUDY METHODS OF GROWING AND HANDLING FLAX IN THOSE
COUNTRIES, JULY, 1907.

The season of 1907 in Belgium and Holland, as well as in Ireland, has been, so far, cold and wet. In spite of this the crops of flax, and indeed crops generally, in the districts visited by the Irish Deputation, were good, and in not a few cases exceptionally heavy.

The land of both countries, and this is especially true of the land in Belgium, is porous and deep, consequently the crops have not been growing in a waterlogged soil, as has been the case in Ireland. In addition to being porous and deep the soil is uniform to a very great depth, four, five, and even six feet. These characteristics—porosity and depth—render the land less dependent on the weather. The porosity enables crops to tide over a wet season, while the great depth of the soil allows the roots of crops to penetrate to greater depths than are materially influenced by drought.

BELGIUM.

The first district visited in Belgium was that of Courtrai.

Steeping is carried on in the River Lys, the water of which is of such a peculiar character (possibly derived from the soil over and through which it flows) as to render that system of little or no value for comparison with the Irish method of steeping—Ireland has no Lys.

A few points may be mentioned, however, as worthy of attention.

(1.) The thorough manner in which every operation of tillage, manuring, cleaning, and harvesting is performed.

Tilling, Manuring, and Rotations. Tillage operations and manuring are as thorough as obtain in garden culture. (2.) Flax is taken not oftener than once every seven or eight years, in some instances once in every ten years. (3.) The dressings of manure, as a rule, are not heavy, except in the case of the crop immediately preceding the flax crop. (4.) Almost every crop in the rotation is manured, either with farmyard manure, liquid manure, or chemical manures, or a combination of these manures. Experience has shown that it is best to manure the crop coming immediately

before flax heavily and not to apply any manure directly to the flax, except an application of liquid manure a few days—in some cases two to four weeks—before the seed is sown. Chemical manures are not largely used for flax. The above mentioned practice, “little and often,” we believe to be sound practice.

In the Courtrai neighbourhood two scutch mills were visited. The internal arrangements of the mills are far more

Flax Mills. conducive to the comfort and health of the workers than is usual in Ireland. Lighting is done by means of glass in the roof, and ventilation by means of fans attached to the main spindle. The revolving of these fans keeps the building almost absolutely free from dust. In these particulars we have a great deal to learn.

The next district visited was that of Lokeren and St. Nicholas, known as the “Blue” district.

In this neighbourhood the methods throughout are very nearly similar to the methods practised in Ireland. The chief points of difference are :—

1. Pulling is done when the flax is rather greener than is the case in Ireland.

2. The flax is not allowed to remain in the steep (in this locality steeping is done in ponds exactly as in Ireland) quite so long as usual in this country.

3. Retting is, however, allowed to proceed as far or even farther than in Ireland, but owing to the higher temperature of the water less time is required to attain the desired stage.

4. After being taken out of the water the flax is spread on the grass, but thicker than is the case with us, and it is

Pulling, Steeping, allowed to lie, in some instances, up to six
and Retting. weeks. During this time the flax is frequently

turned, often after every shower. This operation is performed by means of a long pole, the pole being pushed under the row of flax, and a length of about four yards can be turned at each thrust.

The above-mentioned practice—long lie and frequent turning—is in direct opposition to the prevailing Irish custom. The Belgian farmer claims that the result of his method is a more evenly bleached sample.

The seed is removed, either by rippling or bruising with mallets. It is held that the value of the seed is sufficient to defray the cost of all

the handling operations up to, but not including, scutching. The seed in all the Belgian districts visited is used for feeding purposes—not for sowing.

5. While in the water the flax is covered with mud. The flax is put in, in about five rows, with heads and butts reversed. A layer of mud, obtained from the bottom of the pond, is then plastered over the top. This excludes light and air, and possibly explains the resultant uniform colour.

HOLLAND.

After leaving the Belgian districts, the Rotterdam and Rigsvord districts were visited.

Generally the soil in these localities is heavier and moister than is the case in Belgium, but like the land of the latter country, is sufficiently porous to enable a fairly rapid percolation of water. We were informed that, seldom, even in winter, does water lie on

the land in pools.

The rotation practised in Holland is of about the same length as in Belgium, viz., seven to ten years. In Holland

Manuring and Rotations.

the farms are larger, and the land less frequently manured than in Belgium. In Belgium the land is often manured every year, in Holland once or twice during the seven or eight years' course. In Holland, red clover is one of the crops of the rotation, and the second crop of clover is often ploughed in as green manure.

Owing to the lateness of the season, very little of the flax was pulled or ready for pulling. The crop is usually

Pulling.

allowed to stand till the seed is ripe enough for sowing purposes. Even though this is done, the fibre does not appear to be materially damaged. Some samples of scutch flax obtained by this process were examined by the members of the Deputation and were deemed to be equal to first-rate Irish flax—flax grown and pulled with a view to fibre only.

The quantity of good seed available this year will be small—this refers to Dutch seed. The season in Russia is three

Seed for Sowing in Ireland.

or four weeks later than usual, hence the impossibility of at present estimating the seed prospects generally. From the information the Deputation has been able to gather—and this has been obtained from

some of the most reliable sources—generally the Irish farmer should place his orders early in the season. Whether this rule will apply in the coming season depends on the turn-out of the Russian crop—this season a month late.

The usual practice in Holland is to sow Riga seed on rich land, and Riga Child, *i.e.*, produce of Riga seed grown

Sowing and Seed. one year in Holland, on the less rich land.

This, the Deputation thinks, to be the direct opposite to Irish practice.

From information obtained regarding the cost of good seed, it is doubtful whether some of the seed offered in Ireland is of first-rate quality, the price is possibly less than first-class seed can be offered at. This is a matter deserving of further investigation.

The following points are worthy of re-emphasising, and are probably the cause of a great measure of the success of

General. the flax-grower in the two countries visited :—

1. Early ploughing in autumn, and general thorough cultivation.
2. Manuring in small dressings applied frequently.
3. Careful saving of the liquid manure, scarcely a drop is wasted.
4. Thorough weeding, not only of the flax crop, but of every crop.
5. The very small quantity of land uncultivated. The land is cultivated to the last inch ; practically no land is wasted in headlands, etc.
6. The work connected with the handling of the flax crop is almost entirely performed by men who are engaged in the work the entire year, skilled labourers.
7. In Belgium there is very little pasture land. The cattle are fed in the byres on such soiling crops as clover, vetches, etc. This enables a large number of cattle to be kept, and, therefore, a greater quantity of manure is produced.

Red clover seed is sometimes sown in the flax crop. This ensures the land being kept covered after the pulling of the flax, and sometimes a crop of green clover is obtained during the first autumn. In a very moist season, however, the clover grows up so high in the flax as to injure the quality of the fibre. Possibly the normal Irish season is too

moist to allow this practice to be adopted with success. Such, however, can only be determined by actual trial.

We desire to express our gratitude to the several gentlemen, both in Belgium and Holland, for the hearty manner in which they received us and for the pains they took to render our visit both profitable and pleasant.

(Signed),

ROBERT R. MURPHY, Lislea, Keady, Co. Armagh.

JOHN PORTERFIELD, Lifford, Co. Donegal.

JAMES IRWIN, Skerrymore, Altnamachin, Castleblayney.

CORNELIUS M'LOUGHLIN, Ballycashone House, Hilltown.

JAMES BRADSHAW, B.Sc., N.D.A., Armagh.

ADVANTAGES OF EARLY PLOUGHING.

The Department are convinced that many farmers do not sufficiently realise the advantages of early ploughing.

Early Ploughing Ample evidence of the neglect of Autumn
Neglected. cultivation is afforded by the fact that stubbles

are often left unploughed until late in Spring, whilst lea land is frequently not broken up until immediately before the oat crop is sown in March or even April.

The practice of leaving both stubble and grass land unploughed in this manner is to be strongly condemned.

Whilst it is obviously impossible to specify a hard and fast rule as to the date by which ploughing should be completed, the Department would urge farmers to spare no effort to finish ploughing stubbles by December, and the ploughing of lea land, at the latest, by the end of January.

There is no question that a more extensive system of Autumn cultivation would result in larger and better crops, and, furthermore, a saving of labour would be effected thereby.

Particular attention is directed to the following points :—

The nature of the climate is such that on any but the lightest soils it is frequently impossible to work land to any

Winter Ploughing extent during the Winter, and heavy rains in
not always possible. Spring often unduly delay tillage operations ; it is, therefore, most important that as much cultivation as possible be performed in the Autumn when the land is dry and in a suitable condition for being worked.

It is essential for a successful root crop that the soil should be in good tilth, fine, deep, clean, and not too dry at sowing time. The labour involved in procuring such a tilth is often tedious and laborious ; accordingly no effort should be spared to get the ground intended for roots ploughed early, so that the farmer may reap the full benefit of the influence of air and frost in pulverising the soil, and thus be in a position to get his green crops sown in the ground with the least delay after the corn is sown in Spring.

The cultivation of stubbles should be undertaken as soon as the corn has been removed.

If the stubble is clean, as is usually the case after a heavy corn crop, the land may be deeply ploughed at once, preferably using a wheel or chill plough fitted with a skim coulter. When the stubbles are foul with scutch and other weeds it is desirable before ploughing deeply for

the Winter, to shallow plough or cultivate, harrow, and collect the weeds, whilst the worst patches of scutch may require to be hand forked, but unless such cleaning operations can be performed whilst the land is dry they are better omitted.

When the land has been treated in the manner described and left exposed to Winter frosts and other natural

**Early Ploughing
saves money.**

agencies, the preparation of a seed bed in Spring entails infinitely less labour than is the case where stubbles are allowed to lie untouched throughout the Winter. Furthermore, if the land be dry in Autumn and is easily worked the weeds are more readily eradicated than in Spring.

The adoption of early ploughing effects a more even distribution of labour, and the work being carried out without the haste which usually prevails in spring, is more thoroughly and carefully performed. Also, full advantage may be taken of the fine weather in Spring to get sowing completed with the least delay over preliminary tillage operations, and in a backward year there is not the same tendency for farmers to commence working the land before it is sufficiently dry.

It is often stated that ploughing of lea ground is delayed on account of the value of the winter grazing it affords. However, in view of the fact that practically no growth takes place after the month of October, it is evident that if lea land is eaten down close in autumn, no object is served by leaving it unploughed subsequently, and, accordingly, it should then be broken up without delay. If this is done the vegetable matter in the soil will be decomposed and converted into available plant-food by the time the oat crop is sown. In this connection it should be remembered that manures, as applied to arable crops, are necessarily adjuncts to cultivation, and the results from their application can only be realised to the fullest extent when the soil is thoroughly cultivated. Moreover, on properly tilled land crops are enabled to utilise to the best advantage the natural supplies of plant-food in the soil; this means a saving in manure, and farmers are spared the expense and disappointment which are attendant on the attempt to make up for lack of efficient cultivation, by the application of heavy dressings of manure. If autumn cultivation were more generally practised, it would unquestionably reduce the prevalence of insect pests, particularly wire-worms and leather-jacket grubs; because early ploughing removes much of the vegetable material in which these pests feed during the winter, and the soil being in good condition at sowing time, crops make quick and vigorous growth, and the young plants are soon beyond the stage at which they are most easily injured.

IRISH PRODUCE AT GROCERY EXHIBITIONS IN GREAT BRITAIN.

During the present year the Department of Agriculture and Technical Instruction for Ireland have arranged displays of Irish agricultural produce at various Grocers' Exhibitions in Great Britain, the object being to encourage the sale of such goods amongst wholesale and retail traders by demonstrating the high character and great variety of Irish agricultural produce. Exhibitions of this character have already been held in Manchester, Newcastle, Swansea, and Leeds, as well as at the Aonach held by the Gaelic League in London.

The method of conducting these displays is as follows:—Firms

**Method
of Conducting
the Displays.**

engaged in the manufacture and sale of those articles which are likely to obtain a ready market in Great Britain are invited to send samples of their goods. All goods thus sent are carefully arranged and classified on a large composite stand provided by the Department. A small fee is charged to all traders exhibiting goods, and goods have to be sent carriage paid by the exhibitors, but all further responsibility as to arrangement and display is undertaken by the Department. The Department's representatives, however, do not take orders for anything shown but all inquiries on the part of traders in the district visited are sent on to the exhibiting firms. In some cases exhibiting firms have arranged for a local representative, or agent, or a wholesale buyer in the district, to attend at the Exhibition and take orders, and the Department have no objection to this proceeding.

As an indication of the character of the exhibits, it may be pointed out that creameries from all parts of Ireland have

**Exhibitors and the
Goods they show.**

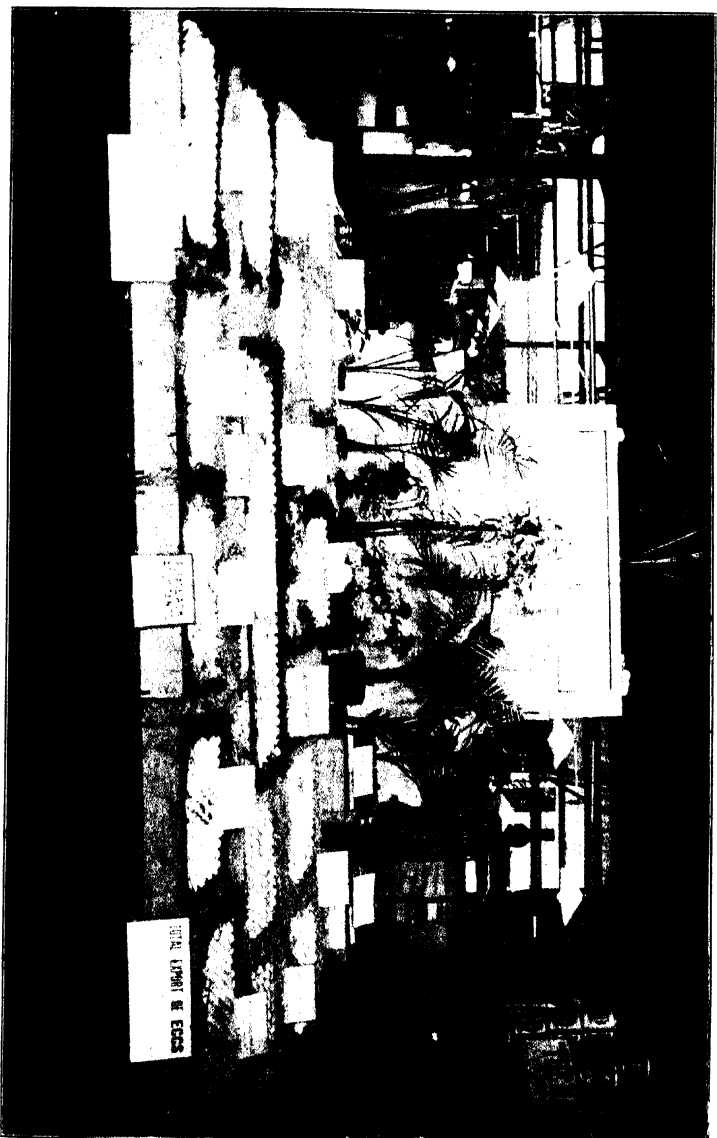
entered exhibits at the various shows. Packages such as they send out their goods in have been displayed and samples of their produce have been on view. Among the articles shown at the various Exhibitions, the following may be mentioned:—Butter, Cream, Condensed Milk, Bacon, Hams, Lard, Preserved Meats, Soups, Sauces, Eggs, Dead Poultry, Fresh Fruit, Pulped Fruit, Canned Fruit, Jams, Jellies, Bottled Fruits, Honey, Oatmeal, Dried Vegetables, Rhubarb Wine, Irish Tobacco, and Soap.

The Grocers' Federations and Associations in the cities visited have taken a great interest in the Department's display and have provided good positions for the erection of the stand and the display of goods, and they have facilitated the Department's representatives in explaining the great improvement that has taken place in the manufacture of the various articles exhibited. Everywhere general surprise was manifested at the extent and variety, as well as at the high character of Irish produce, and it is believed that considerable benefit to Irish traders has already resulted from these displays.

Of the four Grocers' Exhibitions attended, two were managed on the proprietary system, and two conducted by Grocers' Associations. The Grocers' Exhibition at Swansea is an example of the latter kind. The South Wales Grocers' Federation hold an exhibition each year. This year the exhibition was at Swansea in the large Eisteddfod Hall. Some fifty firms from all parts of England and Wales had stands at the Exhibition, and the visitors included all the leading grocers and provision dealers, a number of wholesale firms trading in South Wales, and several thousands of the general public of Swansea and its neighbourhood. Very great general interest was taken in the show of Irish produce, and as proving the satisfactory character of the exhibits, large numbers of orders were booked by those firms who had representatives at the Exhibition. In addition a number of inquiries were made through the Department's representatives as to obtaining a regular supply of the goods shown by various firms who had no representative present. In Swansea, as in the other towns visited, the newspapers devoted a good deal of attention to the display of Irish goods, and pointed out the desirability of local merchants looking more in the future to Ireland as a possible source for obtaining many articles of agricultural produce.

As a result of the success already attained it is proposed to continue these exhibitions and to make a display of Irish fat poultry at the following Christmas fat stock shows :—London, Birmingham, Leeds, York, Norwich, and Leith. These displays, it is thought, will serve a particularly useful function. It has been the practice in the past to send a great deal of Christmas poultry from Ireland "on consignment." This is at best an unsatisfactory system, and that it is largely unnecessary is shown by the fact that the well-known firms in Ireland have

DISPLAYS OF IRISH PRODUCE AT GROCERY EXHIBITIONS.



Eggs.

DISPLAYS OF IRISH PRODUCE AT GROCERY EXHIBITIONS.



Butter and Condensed Milk.

found little difficulty in securing purchasers for their goods. Selling goods in advance is much more satisfactory than sending them "on consignment"; but goods can only be sold in advance where complete confidence exists between purchaser and seller. The English firms must know the kind and quality of the goods they will receive before they will buy them, and it is believed that these exhibitions will serve as an advertisement of the variety and high quality of Irish produce, and will place before English buyers the names of a number of Irish sellers of goods suitable for their trade.

In conclusion, it may be pointed out that similar exhibitions of agricultural produce have been held in some of the British Colonies with complete success, and it is believed that this effort of the Department to bring Irish produce under the notice of the public in Great Britain more effectively than hitherto will result both in the production of higher quality goods and in the considerable extension of the markets for Irish producers.

THE POSITION OF LARCH IN IRISH FORESTRY.

Of the various trees which assist in the composition of modern Irish woods, none receives more attention than the **European Larch**. This tree may be well regarded as one of the most remarkable amongst **European forest trees** for various reasons. In the first place, its natural distribution is one of the most limited of any, being confined to a comparatively small area of mountain land in Central Europe. Its success under ordinary low-land conditions, therefore, may be regarded as something in the nature of the unexpected. For many years after its introduction to the United Kingdom it was looked upon as an arboricultural curiosity only, and it was not until the middle of the eighteenth century that its use in ordinary plantations became general, the earliest and most extensive planter being the Duke of Atholl on his Perthshire estates. As its value became known, seed was introduced from the Tyrol in larger quantities, until it became one of the cheapest trees procurable in public nurseries, and for nearly a century has been employed in the promotion of both mixed and pure crops to a greater extent than any other forest tree.

The value of the timber lies chiefly in a remarkable combination of strength, durability, and lightness. For many purposes larch is found to be as durable as oak, almost as strong, and little more than half the weight. Those qualities have rendered it one of the most popular timbers for pitwood and colliery purposes, in which constant handling, and long carriage by rail or water, make weight a serious factor in the cost. To the economic forester the value of the tree is principally found in its ability to grow on land which is comparatively useless for other purposes, but which will produce a crop of this timber of greater value than that from other species grown on better land. It is not surprising, therefore, that larch should be one of the most popular of the ordinary timber trees of the country, and that it should be planted on every conceivable soil and situation which comes under the management of the forester.

But while the above facts are correct in a general way, others of equal importance to the planter must not be

**Liability of Larch
to Disease.**

overlooked. These are the liability of the larch to diseases at almost every stage of its development, and especially on land which has previously carried a crop of the same kind. Of these diseases, two only are sufficiently serious to mention here, the larch canker or "blister," and the "heart-rot," or root rot which is only detected when the tree is felled. The causes of both these diseases are known, but the exact conditions which induce them are unknown. The tendency to larch blister has been attributed to bad or unsuitable soils, spring frosts, over-crowding, and weakened vitality due to plants being raised from seed of unhealthy stocks. While all these theories may each contain a certain amount of truth, no one of them alone can explain the failure of larch in every case. The exact conditions under which the larch is liable to disease or is immune from it, as the case may be, have yet to be discovered, and until this has been done, the planting of larch is more or less of a speculation. Heart-rot is generally attributed, and probably correctly, to soil, but while some maintain that wet soils are most likely to induce it, others are equally certain that it is more common on dry ground. Probably much depends upon the climate and soil together, and while stagnant moisture is always inimical to the success of the tree, moist soils, due to heavy rainfall or percolating ground water, are usually beneficial. The general uncertainty which prevails regarding the growth of the larch, and the fact that many plantations throughout Britain may be seen in a worthless condition, or are known to have disappeared without producing a single valuable tree, discount to some extent the favourable opinion which many entertain of it. In many instances, it is true, the main cause of failure may be detected in unsuitable soil, such as cold stiff clay, or soil which favours the formation of "moor" or "iron-pan"; but apart from these, it is often difficult or impossible to account for the failure of the tree, especially on ground which has been known to have previously carried a healthy crop.

Fortunately for Irish forestry larch disease is not nearly so much in evidence in Ireland as in England or

**Disease less
in Ireland than
Great Britain.**

Scotland. Although spring frosts do a great deal of damage to the tree, the moist climatic conditions which prevail during the summer and early autumn are favourable for its recovery and rapid growth later on, and one seldom sees plantations in

that stunted condition peculiar to situations liable to spring frosts. But the disease is still prevalent enough to render caution necessary in planting this tree as a pure crop, and especially in face of the temptation to regard the larch as the only species worthy of consideration on account of the pitwood demand. It is true that the market conditions for most timber species in Ireland are as bad as possible. Isolated woods, containing no definite quantity of any given species, and the timber often of inferior quality, do not invite the manufacturer of wood-goods to depend upon them for a steady supply. The Irish timber-buyer is usually a timber-dealer, who buys cheap to sell dear, but between the buying and selling, the cost of carriage from a remote agricultural district to an industrial centre two or three hundred miles away, has often to be taken into account. The heavier the timber, or the larger the size of individual trees, the greater the cost of carriage becomes, unless good roads or the immediate vicinity of a railway station reduce it to normal proportions. The market again, for most kinds of timber, fluctuates from time to time, and a buyer who goes out of the beaten groove which runs in the direction of two or three species only, may find timber left on his hands for an indefinite period. These and other conditions tend to make both buyers and planters fight shy of species which cannot be immediately disposed of at fair prices; and in the present unsatisfactory state of forestry in Ireland, larch seems to be the only tree worth considering in view of the quick returns and the unlimited demand existing for it in the colliery districts of Great Britain.

While it would be unwise to ignore the present demand for and value of larch timber, it is advisable, in the interest of both planters and timber buyers, to review the position of trade at the present time, and the effect of its development upon Irish woods. At present the market price of larch varies, according to distance from rail or port, from 7*s.* 6*d.* to 15*s.* per ton in the wood, the minimum size being 4 to 5 inches in diameter at the small end. A pure larch plantation which has grown well from the start should produce a crop of about 50 tons in twenty-five or thirty years per statute acre. For this the owner should receive, in an average district, 10*s.* to 12*s.* per ton, according to the state of the market. This is equal to a gross yield of £25 to £30 per acre, and probably represents a nett annual yield of about 7*s.* 6*d.* per acre after allowing for rent of land, costs of planting and management, and compound interest throughout the entire

period. If the ground could be replanted and produce a crop of this kind every thirty years or so, few systems of forestry would be found more profitable than this in Ireland. But as every day experience proves, this cannot be done on anything but a limited scale. Apart from ground which is altogether unsuitable for larch, its growth on the same soil deteriorates with every succeeding crop unless the latter happens to have been a very thin and patchy one owing to wind or faulty planting. A larch plantation of any size invariably shows thin and badly developed patches which bring in little or nothing when cut out, and these tend to reduce the average yield from the soil very considerably. In addition to this, however, the tendency of the trees to develop heart-rot is very much greater on replanted ground than on fresh soil. The decaying roots and stumps in the ground provide favourable conditions for the growth of fungi, which are able to attack broken or wounded roots, and from the latter spread into the timber of otherwise sound trees. A large percentage of affected trees invariably exists in larch crops following each other in this way, and both the quality and quantity of the timber yield per acre is lowered.

Whatever the exact cause may be, therefore, the planter of pure larch very rarely makes more out of his woods in the long run than the planter of judiciously mixed crops. The high yield of one acre on plantation is invariably called upon to make good the failure or low yield of another, and as time goes on the failures are as numerous as the successes.

The question of importance, therefore, is to devise some method by which larch can be still planted in moderation and at the same time the losses which result from trusting to it entirely, be avoided.

The method which suggests itself most readily is that of mixed plantations, but from the manner in which the mixing is often carried out, it is evident that the principles underlying the work are imperfectly understood. The usual result of a mixture, is either the total annihilation of the other species by the larch in a few years, or the removal of the latter in such a way that the former are destroyed by sudden exposure, or by the felling of the larch round about them. In either case nothing is gained by mixing, and the larch may as well be planted pure for all the good that is attained.

In forming a proper mixture, it is necessary to bear in mind several facts. The first and most important is that the larch makes its most rapid growth on most soils during the first twenty years after planting. In that period it often attains a height of forty to fifty feet in sheltered spots in Ireland, and very few trees are able to keep pace with it. The result is that none but shade-bearers are able to survive amongst it, unless severe and early thinning is resorted to about the tenth or twelfth year after planting. Now early thinning reduces the quantity of pitwood by deepening and widening the crowns of the remaining trees, and checking their height growth to some extent, and the aim of the pitwood grower is to obtain length at the expense of breadth. Without thinning to any extent, beech and silver fir are about the only species of importance able to survive crowding in for ten or fifteen years, and here we have a mixture which, if properly treated, will enable the larch to be used, or mostly used, during the first half of the plantation's life, while the remaining half will allow a fair crop of lower priced timber to reach a marketable size.

Another form of mixture with larch is that in which fast-growing species are used which can keep pace with, or even outpace it. In this form the value of the pitwood will be reduced, as the larch will make little headway when once overtopped by other species, but the ultimate development of the plantation will be favoured and the danger of injuring the standing stems is less. Douglas fir, Corsican pine, Spanish chestnut, and ash will all grow sufficiently fast to preserve themselves from injury when mixed with larch, and the removal of the latter can be made more automatically, as the larch itself becomes sickly or is crowded out. In either of the above forms of mixture the important point is to plant sufficient of what may be termed main-crop species to cover the ground when the larch has been removed. In many mixtures this has not been sufficiently attended to, the result being that a thin scattered crop only remains after the final thinning. When the larch is still healthy and growing, the gaps can be avoided by leaving larch to grow on to maturity, but in cases which are being here kept in view, this is not likely to occur to any great extent. At least one-fourth of the plantation at the age of ten years or so should consist of main-crop species, or about 700 or 800 to the acre. At forty years of age these should be forming a fairly thick and even crop, provided judicious thinning of larch has taken place from the

fifteenth to the thirtieth year, by which time the bulk of that species should have been removed.

The yield of pit-timber under the above system will, of course, be less than in pure crops ; but the general system of forestry involved is far sounder than by trusting to larch only. While it provides for early returns, and enables the planter to get a portion of his outlay back within a possible lifetime, it reduces the cost of management which is incurred by more frequent clearings and replantings, and lessens the risk of failures attending the growing of larch alone.

Another advantage lies in the more healthy condition in which the soil is maintained by a mixed crop, a condition which increases the probability of successful replanting at the end of the rotation, while the large number of comparatively wind-firm species reduces the danger of injury from storms.

Whether the Japanese larch will prove to be a safer tree for pure plantations than the European variety cannot be stated at present ; but for the next ten years or so caution should be exercised in planting it on a large scale, so uncertain is the development of many introduced trees in the climate of the British Isles.

CROP REPORT—No. 4.

The agricultural outlook at mid-October is much less encouraging than it was during the closing weeks of September. The period of bright, dry weather which farmers enjoyed at that stage enabled much harvesting of the earlier cut cereals to be satisfactorily completed, though over a large part of the country, owing to the unusual lateness of the season, the fortnight was taken up in the actual cutting of the crop. Most of this work was done under very satisfactory conditions, and by the end of the month the vast majority of the fields were safely in the stook. Unfortunately about the opening days of the present month, dark, cold, rainy weather again set in, and a succession of wet days effectually checked further progress with harvesting work. Meantime much corn that has been sufficiently long cut for stacking remains stooked in the fields in a very drenched condition. Almost three-fourths of the corn crop is suffering from this prolonged exposure to wet, and from many districts complaints are being made that besides discolouration

**A Broken
Harvest.**

and damage done to the grain by the continued dampness, an amount of sprouting in the stook is beginning to take place, which is certain to be an additional loss to the quality of the sample when thrashed. Even during the fine weeks in September the air remained dull and foggy, and there was a marked absence of the strong searching wind of harvest time that dries and kills the sheaves in the stook till they rustle to the touch; the result has been that a great quantity of carted corn heated in the stack and had to be forked out again, thus causing considerable extra labour besides injury to the grain. In the barley-growing counties threshing is being proceeded with under difficulties, and many of the lots marketed have been rejected on delivery in bulk owing to dampness in the grain. Notwithstanding the desire of many farmers to have their main potato crop lifted as early as possible for the purpose of ensuring sounder seed, the wetness and stickiness of the soil absolutely hinders the work from being proceeded with; at the present time potato fields are as a rule a complete mass of surface weeds which will require to be cleared off before digging either with a horse-machine or the spade can be attempted. In some cases farmers are turning sheep and young stock into the drills in the hope of getting the bulk of weed growth either eaten off or effectually tramped down. At the present juncture there is an immediate and pressing need for hard dry weather to complete the

harvesting of crops that have suffered so much at every stage from the inclement nature of the season. Throughout the Northern and Western counties and the later districts of the Southern and Midland areas the outstanding fields of corn are in a precarious state, and unless a further spell of favouring sunshine and drought sets in, the prospect of general and serious loss is certain.

The area under wheat, according to the recent returns, shows a decrease from 43,380 acres in 1906 to 38,151 acres this season. Of this area Leinster grows 14,262 acres, Munster 10,502 acres, Ulster 9,294 acres, and Connaught 4,093 acres. According to the reports of correspondents in County Carlow and County Kildare respectively, the wheat crop has proved the most remunerative of the year to farmers. The yield of grain in Ulster has been estimated at from 6 to 10 barrels (20 stone) per statute acre; in Connaught from 6 to 8 barrels, in Leinster 7 to 12 barrels, and in Munster 7 to 9 barrels. The averages for the four provinces would likely approximate as follow :—Ulster $7\frac{1}{2}$, Connaught 7, Leinster 9, and Munster 8 barrels. Prices are returned as ranging from 20s. to 23s. per barrel for good, well cleaned samples of hard grain. At this figure the crop must be regarded as encouragingly remunerative. There are some complaints from County Wexford regarding the prevalence of smut in the crop this season, but the occurrence of this fungus attack does not appear to be very widespread. One or two correspondents report that the new Red Fife variety gave an excellent return this season. A King's County grower remarks that farmers in that county are beginning to show an inclination to sow wheat in preference to barley on account of the bad yield and poor price paid for the latter this season (best malting barley 13s. to 14s. per barrel). The wheat crop is also, it would appear, coming into greater favour with the smaller farmers in County Cork, who grow it for home use and for making calf meal.

The oat crop has proved of a very variable nature this season. Where grown on lea it has turned out much better than on manured ground. Further, on the lighter and drier class of soils, excellent yields of both grain and straw have been obtained, whereas on cold heavy low-lying fields the crop came up thin and straggling, got stifled by a strong undergrowth of weeds and bottom grasses, came to maturity very slowly, and eventually yielded a poor return of both

grain and straw. In such situations, a County Antrim correspondent refers to oats this season as "the worst crop on record" and estimates that not more than a diminutive yield of from 5 to 6 cwt. of grain per statute acre may be expected. The abnormally wet summer encouraged an unusually strong growth of grass in oats which added materially to the difficulty of getting the crop sufficiently dried for carting to the stack. More especially was this feature observed where the crop was laid down with grass seeds and clover in the spring; in most cases where the seeds were sown along with the oats, the grass was found to be as high as the corn crop at cutting time; in a normal season this no doubt would have added to the value of the oaten straw as fodder; this year it has proved a serious cause of delay in getting the crop thoroughly killed and dry enough in condition for stacking. As it is, there is certain to be much straw of inferior quality for cattle feeding this winter, and on many farms, as a County Waterford correspondent points out, the large bulk of it will be almost useless for this purpose. Notwithstanding the general inferiority of the crop over much of the country, where early sown on good dry land, splendid yields are reported. Some very heavy yields per acre are returned from the Counties of Dublin, Waterford, and Meath, but on the whole the average will fall considerably below that of last season. In Ulster the estimated yield per statute acre ranges from 11 cwt. to 25 cwt. per acre. An owner of several steam threshing machines in County Derry puts it at 160 stones (50 less than last year) on good land, and from 80 to 100 stones on cold wet land. A County Tyrone farmer writes that the yield from a good average statute acre of oats will approximate to about 170 stones, and probably an average of 20 to 22 cwt. of grain may be taken as representing the general run of the crop yield, except on the cold damp type of soil already referred to. Leinster returns show a variance of 7 to 8 barrels (14 stone) in County Kildare to as high as 21 barrels in Dublin, Wexford, and Meath; the average estimate would appear to be in or about 12 barrels. Munster claims from 9 to 14 barrels per statute acre, and the correspondents in the western province give the yield per acre at from 14 to 18 cwt. Prices at the opening of the season are slightly higher than in other years; in the northern markets, where oats are sold at so much per stone, good samples are fetching from $9\frac{1}{2}d.$ to $10\frac{1}{2}d.$; the current price through the Leinster and Munster counties ranges from $9s. 6d.$ per barrel to $10s.$ and over.

According to the crop statistics Return,* there were over 6,000 acres less barley grown in Ireland this season than last. In common with most other tillage

Barley.

crops, barley shows a similar tendency towards contraction in area, but besides the usual fluctuation due to conditions of rotation and other causes which is bound to occur from year to year, it is probable that the unfavourable nature of the seed time this year was largely accountable for the diminished acreage grown. Of the three cereal crops, barley is the most difficult to save in good condition, and is certainly the most susceptible to damage from broken weather at the time of harvesting. The crop reports from the chief barley-growing counties show that, so far as threshing has proceeded, the following may be taken as the leading features which the samples of grain already marketed exhibit ;— (1) A great deal of small corn or screenings in proportion to the large fully-developed grain ; (2) much variation in quality, even in the bulk of the same sample, “one bag being good, and another bag bad,” as a County Wexford grower puts it ; (3) much liability to softness and dampness in the grain owing to the unfavourable harvest ; (4) the excessively large quantity of damaged grain which is unfit for malting purposes, and which will in consequence have to be disposed of at a lower figure for cattle feeding, or be consumed by the live stock on the farm. In view of the fact that all kinds of imported feeding stuffs are rising in price, and likely to do so even more during the winter, the extra quantity of damaged barley thrown on the hands of farmers will be in consequence consumed with greater economy this season by the live stock kept. The estimated average yield per statute acre varies between $6\frac{3}{4}$ barrels to 10 and 11 barrels. The returns are certainly below the average, and in all probability from 8 to $8\frac{1}{2}$ barrels will be found to represent the bulk, county with county. Prices for best malting samples range from 13s. 3d. in King's County to 14s. in County Wexford, and 14s. 6d. in Queen's County. This represents a slight advance on the prices given at the similar period last year.

Rye, a crop which is most widely grown in Mayo and Galway, and to a lesser extent in Donegal, Clare, Roscommon, and Sligo, is reported as being fairly good, and seems to have suffered less from wet than the other cereals. Invariably the earlier sown fields have done

Rye.

* Abstracts showing the Acreage under Crops and the Numbers and Descriptions of Live Stock in Ireland, 1906-1907 [Cd. 3769—1907].

best. A County Leitrim correspondent estimates the yield at from 18 to 20 cwts. per statute acre.

There is a general agreement that the potato crop, while turning out better than was at one time anticipated, will
Potatoes. in most districts hardly be an average. Where planted early on good dry soil and efficiently sprayed, the yield is reported on all sides to be satisfactory. On the other hand, over much of the cold wet soils of the West, and in poor mountainy districts generally, the crop is referred to as a partial failure, giving but a small yield of stunted, poor-sized tubers. An examination of the reports discloses the following outstanding facts in connection with this year's crop :—(1) Tubers, notwithstanding the damp conditions of growth, are dry and of exceptionally good quality for eating. (2) There is an excessive proportion of small to medium and large-sized tubers noticeable in the crop this year, due, as one correspondent suggests, to (a) the effects of frost near the end of August, which completely checked further growth, and (b) the persistent rain since. (3) From nearly every county, with the single exception of one district in County Down, the testimony is general, that very few diseased tubers are noticeable in the ground. A County Wicklow farmer writes :—“Potatoes are very good for table use, and very little bad ones with anyone” ; a County Fermanagh correspondent says : —“There are very few complaints of rottenness, except where grown a second or third time on the same ground.” (4) There is great divergence in the estimated yields, varying, as they do, with soil conditions, time of planting, etc. The extreme limits may be put at 1½ tons to the statute acre in some of the Connaught counties, up to 12 tons actually raised from dry, well-manured soils in counties so far apart as Tyrone and Tipperary. (5) The increase in yield due to spraying has never received more emphatic confirmation than this past summer. So needful is this precaution for successful potato cultivation, that in the words of a County Cork correspondent, the time would seem to have come when the practice “must be insisted upon.” A County Roscommon correspondent affirms that in his county “the crop would have been an absolute failure but for spraying.” Better testimony could not be desired than the following estimate of yields under different conditions, as given in the report of a County Leitrim correspondent :—“Where planted early and sprayed twice, a medium crop; where planted late and sprayed once, about half a crop; unsprayed, about one-fourth a crop.” (6) Several correspondents point out that, owing to the diminished yields, potatoes are at present making double their usual price at this

time of the year, current rates being from 3s. 6d. to 4s. 6d. per cwt. Whether this price entitles potatoes, as one Kildare correspondent claims them to be, "the best paying crop the farmer has," there can be no question that even with a somewhat reduced yield the careful grower will be amply compensated before the season is out. Ulster estimates, in point of yield, vary from $2\frac{1}{2}$ to 12 tons, Leinster from $1\frac{3}{4}$ to 8 tons, Munster $3\frac{1}{4}$ to 12 tons, and Connaught from $1\frac{1}{2}$ to 6 tons per statute acre.

In a season which marks decreased yields in every kind of crop with the single exception of hay, there is nothing

The Root Crops. which stands out as such a signal failure as the root crops. Both mangels and turnips exhibit a considerable deficiency from the average annual yield usually obtained, the estimate being that in the case of the former crop it is at least 20 to 25 per cent. below the average, and in that of the latter fully 50 per cent. This season the acreage under mangels amounts to 67,086 acres or 114 less than in 1906, and the turnip area to 275,129 or a decrease of over 3,000 acres on last year's return, so that the shortage in house feeding for cattle, both stores and dairy cows, during the coming winter will be very considerable. The wet season effectually checked the

Mangels. depredations of the mangel "fly," but this compensation bears little proportion to the lack of heat and sunshine which the crops suffered from throughout. From County Kildare there are several complaints regarding an unusual number of the plants "bolting" this season, and from the same county extensive damage due to "heart rot" is reported. All round the crop is spoken of as inferior except in County Dublin where good yields are anticipated. The Ulster estimates run from 10 to 30 tons per statute acre, Leinster 10 to 30 tons, Munster 15 to 35 tons, and Connaught 8 to 24 tons.

Turnips are generally acknowledged to be the worst crop of the year, and, except where early sown on the best lands, will return barely half the average yield. **Turnips.** Though favoured in growth by the fine weather in September, a tendency to an excess of leaves is noticeable without any corresponding bulb development. The only two counties from which good accounts of the crop come are Dublin and King's County. One correspondent in the latter county describes them as an excellent crop and over the average of the past two or three years ;

both these instances are however striking exceptions to the unanimous reports from every other county. The estimated average yield from the four provinces range from 12 to 18 tons per statute acre, but it is probable that for most of the country not more than 10 to 12 tons per statute acre may be anticipated.

Cabbage has proved disappointing and will bulk in yield much behind last year's crop; 25 tons per statute

Other Green Crops. acre is the estimated yield by a County Antrim correspondent and 30 tons by a County Tipperary farmer. From Sligo and Roscommon there are complaints that the crop did not "hearten" as usual and has grown more to loose outside leaves. Rape, where grown, is reported as good, as are also Parsnips and Carrots. Much "bolting" in the latter crop is reported both from County Tyrone and County Cork. The Bean crop which is largely grown in County Antrim is spoken of favourably, and a yield of 25 cwts. per statute acre is anticipated.

Reports regarding the Flax crop show that the yield of fibre will prove to be better than was once expected. Like

Flax. most other crops, however, its success was this year almost altogether dependent on the nature

of the soil on which it was grown. Where sown early on light soils the average return so far works out at about the rate of 5 cwts. per acre; an exceptionally good return for the season is reported by a Co. Tyrone grower who had a yield of 9 cwt. 0 qrs. 17 lbs. as the produce of a half bag of seed sown on 3 roods (Cunningham), or almost a statute acre. Where late sown on stiff low-lying clay soils the crop proved a miserable failure, and will barely yield more than 24 stone or 3 cwts. per acre. Over most of the flax growing area, owing to the late harvest the scutch mills have only just begun work, so that at this stage it is impossible to be definite as to average yields. There can be no question the crop will prove most irregular. In County Armagh there is a dread that the fibre will prove too soft and scutch away greatly, and accordingly the yield is anticipated to be 20 per cent. less than last year. In Co. Donegal the straw is said to be scutching out badly in the mills and will not give half last year's yield; the same report comes from County Monaghan where only 3 stones of fibre to the peck of seed sown are being obtained in comparison with six stones last season. County Down reports are more encouraging, and such straw as has been worked in the mills is described as yielding well to fibre. The quality of the

lots already marketed is reported as good, and prices in most districts satisfactory. In Donegal, Derry, and portion of Tyrone, where the cwt. is the usual basis of sale, the range has been from 58s. to 65s.—one lot grown in County Donegal, but marketed in Coleraine, bringing the excellent price of 80s. per cwt. In the other counties quotations range from 6s. 6d. to 8s. per stone. Inasmuch as the flax area this last year increased from 55,189 to 59,655 acres, the slight advance in prices noticeable will to some extent compensate for the expected average falling off in yield and thus encourage a further increase in the area sown next season.

The estimated yields from the hay crop this year point to an average of 2 to $2\frac{1}{2}$ tons per statute acre of new crop or upland, and of 3 to $3\frac{1}{2}$ tons old meadow. As a rule the crop appears to have been well saved and satisfactorily ricked. From Co. Antrim there comes some mention of heating having taken place after the crop had been brought into the stackyard, but this occurrence does not appear to be general. In those Ulster counties where grass-seed growing is practised, notably in portions of Tyrone, Londonderry, Antrim, Armagh, and Down, there is a considerable falling off in the yield of seed obtained. As a rule this year's average will not exceed much more than 4 cwts. per statute acre compared with 6 to 7 cwts. last season. Prices per cwt. have been, however, from 5s. to 6s. higher, recent quotations in some of the more important marketing centres being Perennial seed, 15s. 6d. per cwt., Italian seed, 17s. per cwt.

Pastures are spoken of as having greatly improved with the advance of the season and are carrying an abundance of grass for all kinds of stock. As a consequence, store cattle are reported as now doing better than anytime this season, but there is a fear that the herbage being of a soft nature may not persist long on the ground, should cold wintry weather supervene early.

Referring to the season generally and its extraordinary lateness, several correspondents describe it as one of the worst which Irish farmers have experienced for a generation, while even those who take a less gloomy view of it, admit that it will not by any means prove to be an average.

Most correspondents regard the outlook for the coming winter as exceptionally gloomy. Pig-feeding will be very

The Season's Outlook. scarce owing to the small supply of potatoes available; cattle, unless in good condition for shippers will be difficult to sell to advantage; the average price of produce may in some cases be higher than other years, but the reduced yields and the inferior quality of much of the corn crop will leave returns per acre less than usual; owing to lack of roots, few farmers will be able to fatten off cattle in the winter months, and for this cause farmers in some districts are already disposing of cattle which in other seasons they would tie up and house feed; all kinds of feeding stuffs are advancing in price and likely to go higher, a handicap which will be especially felt owing to the deficiency in the home-grown root supply; turf fuel everywhere is scarce and badly saved, and in the poorer and more mountainy districts of the west, this loss is certain to be severely felt. All over, the retrospect of the season is one highly unfavourable in every way to the farmer, and the immediate prospect itself is far from encouraging.

The following is a short synopsis, according to provinces, of the crop reports received :—

Ulster.

Wheat a fair average crop; not much grown. Oats variable according to soil and position; generally under average: most of the crop still out. Barley under average crop; not much grown. Rye a fair crop; little grown. Potatoes a most irregular crop; great variation in yields; return under average. Mangels fair crop in places; early sown best: will be considerably below usual bulk per acre. Turnips a very poor crop, especially late sown on heavy soils; will be far short; not more than half usual quantity. Cabbage a middling crop. Parsnips and carrots fair; the latter much "bolted." Flax better than expected; yield variable; will be under last year's average. Hay a good crop, well saved; some cases of heating in the stack have occurred. Pasture gave an average grazing season; improved greatly in September; cattle now doing well.

Leinster.

Wheat, average crop; quality fair. Oats a fair crop; grain very uneven; yield about average. Barley yield under average and quality poor; much damaged grain. Rye, little or none grown. Potatoes under average crop; quality excellent; little diseased tubers; spraying

most effective. Mangels a fair crop in some districts ; as a rule under average. Turnips a poor crop ; early sown fields promise best, but bulbing very slow. Cabbage good. Carrots and parsnips fair. Flax not grown. Hay a good crop and well saved. Pasture much improved and keeps abundant.

Munster.

Wheat a fair crop ; little grown. Oats a fair crop, but much damaged ; not up to average ; very unequal in quality. Barley considerably below average in quality and yield. Rye little grown except in occasional patches ; fair. Potatoes on the whole a fair crop and good to eat ; more small potatoes than usual ; little disease noticeable except in very cold land ; greatly benefited by spraying. Mangels a fair crop but not up to average. Turnips a good crop on the higher and drier lands, but in wet places practically a failure. Cabbage a good yield and may be up to the average. Flax not grown. Hay well above the average in yield ; nearly all well saved. Pastures are very good for the season ; all kinds of cattle doing well, but the coldness of the nights is a check to their putting on condition.

Connaught.

Wheat a fair crop ; little grown. Oats a fairly good crop for the season ; quality of grain poor ; much still in stooks and some even uncut. Barley fair yield but poor in quality ; little grown. Rye a good crop. Potatoes not more than half a crop and very small ; quality for eating splendid ; would have been a failure only for spraying. Mangels a fair yield where early sown. Turnips as a rule not more than half a crop. Cabbage only a poor crop ; did not whiten well and are maturing slowly ; have grown more to leaves than heads. Flax not grown. Hay rather plentiful but not well saved ; quality bad and more weeds in it than usual. Pasture looks fresh and soft but on account of late growth may melt quickly at the approach of winter ; was greatly benefited by the dry weather in September.

*Statistics and Intelligence Branch,
20th October, 1907.*

IRISH FRUIT CROP STATISTICS.

According to statistics recently obtained, the area devoted to fruit growing in Ireland has expanded from 10,602 acres in 1906 to 11,433 acres in 1907, or an increase of 831 acres. In the years 1906 and 1907 the Statistics Branch of the Department required the Enumerators of the Agricultural Statistics, by the use of special fruit forms, to show the acreage devoted to the different kinds of fruit. The information so obtained for those years is now available and it has a special value as indicating the comparative extent and importance of the several fruit crops.

The enumeration of the different fruit crop areas in the country is attended, however, with its own special difficulties ; as chief of these may be mentioned the fact that a considerable extent of the fruit growing area consists of mixed fruit crops, *e.g.*, apples, gooseberries, and currants, which are often grown together on the same plot ; there is therefore considerable difficulty in determining the different areas so occupied—in itself a matter of great importance. Even with an allowance, however, for the want of exactness which results from this feature, the figures in question furnish an approximate idea of the extent of the several fruit crops. The task of securing such returns has, it may be said, only just begun, and the range of variation between the estimated and actual areas devoted to the different kinds of fruit grown will, it is hoped, be lessened as the work proceeds. It is almost a necessity for the encouragement and development of fruit growing in Ireland that figures should be at hand which will enable not only the importance of the different kinds of fruit grown to be gauged in respect of cultivated areas, but will furnish a means of calculating the available supply of each, whether for the home or English market.

The figures for the year 1907 being as yet unrevised only those showing the fruit areas in 1906 are dealt with below.

The figures obtained from the special fruit crop returns for the season 1906, show the areas employed in fruit production in Ireland according to provinces to have been as follow :—

	Acres.
Ulster,	5,847
Leinster,	2,535
Munster,	2,432
Connaught,	620

By far the largest fruit-growing county in Ireland is Armagh, with a total area devoted to the industry of 2,939 acres. Cork at a long interval is second with 990 acres, Antrim third with 667 acres, Meath fourth with 521 acres, the next six counties in order being, Dublin 484 acres, Wexford 331 acres, Tyrone 299 acres, Tipperary 288 acres, Limerick 276 acres, and Kilkenny 272 acres.

In the special enumeration forms issued for obtaining the fruit crop area, a subdivision of the different kinds grown is made into (1) "small and bush fruits," which include :—gooseberries, strawberries, raspberries, red and white currants, and black currants; and (2) "fruit trees," comprising under this heading :—apples, pears, plums, damsons, and other kinds. An examination of the individual figures returned under these different kinds show that County Cork can claim to grow the largest area of gooseberries. Out of a total of 819 acres grown, the southern county

**Bush Fruit
Areas.**

is alone accountable for 118 acres; County Dublin with 75 acres has the next largest area under this fruit, while Counties Meath and Armagh each grow 65 acres. More than half of all the strawberries raised each year in this country come from County Armagh, where, in 1906, out of the total of 897 acres for all Ireland 486 acres were grown; County Cork comes second with 93 acres, Dublin third with 54 acres, and Antrim fourth with 44 acres. Of the 418 acres under raspberries County Meath is responsible for the largest share with 151 acres, County Cork being next with 74 acres, and Armagh close up with 68 acres. Both the red and white currant crop as well as the black currant crop, which amounted to 211 and 292 acres respectively, seem to be fairly evenly distributed over the country, no single county having much of a preponderance in area. County Cork, with 27 acres, grows most of the red and white varieties, and County Armagh, with 57 acres, most of the black variety.

The area under the apple crop in 1906 reached 6,411 acres as compared with 857 acres under pears, plums, damsons, and

Tree Fruit Areas.

other kinds of tree fruit. Of this area of 6,411 acres, 2,154 acres, or slightly more than one-third, were grown in Co. Armagh, the three next counties in order of area being Co. Cork 569 acres, Antrim 482 acres and Waterford 238 acres. Only 230 acres of pears are returned as grown in all Ireland. Counties Cork and Dublin grew 31 and 20 acres respectively, Armagh with 15 acres having to be content in this instance with third place. Meath appears to grow more plums and damsons than any other Irish county with 53

acres of the former and 44 acres of the latter fruit out of total areas of 235 and 139 acres respectively. Dublin in the case of the plum crop is second with 21 acres and Armagh in the case of damsons with 14 acres.

The following figures show the relative importance of the different fruit crops in Ireland for 1906 according to area :—

	Acres.
Apples,	6,411
Strawberries,	897
Gooseberries,	819
Raspberries,	418
Black Currants,	292
Miscellaneous Tree Fruit,	253
„ Plums,	235
„ Pears,	230
Red and White Currants,	211
Damsons,	139

The relative extents of the fruit areas in the four provinces, as well as in the six chief fruit counties, are shown in the following table :—

COUNTIES.	Area under Bush and Fruit Trees.	Small and Bush Fruits.					Fruit Trees.				
		Gooseberries.	Strawberries.	Raspberries.	Red and White Currants.	Black Currants.	Apples.	Pears.	Plums.	Damsons.	Other Kinds.
LEINSTER, .	2,116	257	130	212	68	68	1,052	71	117	63	78
MUNSTER, .	2,263	231	140	93	63	74	1,487	76	47	5	47
ULSTER, .	4,964	262	600	102	58	127	3,511	63	60	68	113
CONNAUGHT, .	562	69	27	11	22	23	361	20	11	3	15
COUNTIES.											
Armagh, .	2,939	65	486	68	16	57	2,164	15	21	14	43
Cork, .	990	118	93	74	27	37	569	30	15	2	25
Antrim, .	667	44	44	6	16	17	482	12	13	20	13
Meath, .	521	65	16	151	7	8	155	7	53	44	15
Dublin, .	484	75	51	26	18	17	210	21	32	4	18
Waterford, .	231	33	15	7	8	8	238	13	6	1	2

OFFICIAL DOCUMENTS.

I.—ADMINISTRATIVE.

DEPARTMENTAL COMMITTEE ON IRISH FORESTRY.

COPY OF MINUTE APPOINTING THE COMMITTEE.

I HEREBY nominate and appoint a Committee to inquire into and report upon the following matters relating to the improvement of Forestry in Ireland, viz:—

- (1.) The present provision for State aid to Forestry in Ireland;
- (2.) The means whereby, in connection with the operation of the Land Purchase Acts, existing woods may be preserved, and land suitable for forestry acquired for public purposes; and
- (3.) The financial and other provisions necessary for a comprehensive scheme of afforestation in Ireland.

The Committee will consist of the following:

THOMAS PATRICK GILL, Esq., Secretary of the Department of Agriculture and Technical Instruction for Ireland (Chairman);

The Right Hon. Lord CASTLETOWN of Upper Ossory, C.M.G., B.L.;

WILLIAM REDMOND, Esq., M.P.;

Most Rev. DENIS KELLY, D.D., Lord Bishop of Ross, member of the Agricultural Board;

HUGH DE FELLENBURG MONTGOMERY, Esq., D.L., member of the Agricultural Board;

WILLIAM FREDERICK BAILEY, Esq., C.B., one of the Estates Commissioners;

WILLIAM ROGERS FISHER, Esq., M.A., Delegate for Instruction in Forestry at the University of Oxford;

Professor JOHN RICH CAMPBELL, B.Sc., Assistant Secretary in respect of Agriculture of the Department of Agriculture and Technical Instruction for Ireland.

(Signed) T. W. RUSSELL, Vice-President of the Department of Agriculture and Technical Instruction for Ireland.

Dated this 29th day of
August, 1907.

II.—AGRICULTURE.

22nd August, 1907.

AGRICULTURAL SCHEMES, 1907-8.

Sir,

In forwarding, for the information of your Committee, the accompanying copies of the Agricultural Schemes for 1908, the Department desire to direct special attention to the undermentioned alterations which have been made in the Schemes.

LIVE STOCK.

Horses. Clause 11. The Register which heretofore comprised the names of accepted pure-bred sires only, will in 1908 contain the names of *all* stallions accepted for service under the Horse Scheme, including Irish Draught and Halfbred sires.

Clauses 13 and 14. Applications for registration will not be considered after 30th November, 1907, in the case of sires already at stud in Ireland, or after 28th February, 1908, in the case of other stallions.

Clause 21 (5). Each person exhibiting a mare with a view to obtaining a nomination must sign a certificate at the end of the entry form to the effect that all the particulars given thereon are correct. If required such certificate must be attested by a Magistrate.

Cattle. Clause 16. The owners of pure-bred bulls exhibiting their animals with a view to having them provisionally selected for premiums, must give an undertaking that when required by the Department they will have such provisionally selected bulls entered in the herdbooks of their respective breeds. This is necessary in order to make the Department's Dairy Cow Registration Scheme a success.

Clause 21. (5). Any County Committee may require that the owner of a premium bull shall not keep any other bull on the farm on which such premium bull is located.

Clause 26. Any County Committee may refuse to award a premium to a selected applicant unless he purchases a premium bull which has been certified to have passed the tuberculin test.

Swine. As the Royal Ulster Agricultural Society contemplate starting a Register for the Ulster Breed of swine, boars entered in such Register will be eligible for selection as premium sires (Clause 10) and the premium in the case of such boars will be £3 for each year (Clause 13).

LOANS FOR PURCHASE OF BULLS.

Clause 10. Purchasers under the Loan Schemes are given the option of having their bulls insured in either of two ways for a payment of 5 per cent. on the purchase price.

SUBSIDIES TO SHOWS, &c.

The Department wish to refer to the first sentence in Clause 3 with the purpose of securing that special encouragement shall be given to the smaller farmers.

PRIZES FOR COTTAGES AND SMALL FARMS.

The 20th May, 1908, has been fixed as the last day for receiving entries. This has been found necessary in order to permit of arrangements for judging being made in proper time.

It is desirable that the earliest possible intimation of the competitions should be given to residents in the County.

INSTRUCTION IN AGRICULTURE.

A paragraph has been added to Clause 10 to remove some doubts which arose this year as to the duties of the Instructor.

WINTER AGRICULTURAL CLASSES.

A Clause (No. 17.) has been added requiring the Secretary of a County Committee to furnish certain returns.

POULTRY SCHEME.

Clause 10 has been re-worded so as to clear up a misapprehension which arose in some counties during the past year as to the number of visits which the Instructor should make to each class of station.

HORTICULTURAL SCHEME.

In view of the provisions of the Destructive Insects and Pests Acts, 1877 and 1907, a paragraph has been added to Clause 10 requiring the Instructor to report all cases in which the existence of American gooseberry mildew has been discovered or is suspected by him.

I have to add that a supply of any one or all of the agricultural schemes for distribution will be forwarded on receipt of an application on the enclosed form for a specific number of copies of each scheme.

I am, Sir,

Your obedient Servant,

T. P. GILL, *Secretary.*

The Secretary of each
County Committee of Agriculture.

LIVE STOCK SCHEMES, 1908.

PREFATORY NOTE.

SCHEME FOR ENCOURAGING IMPROVEMENT IN THE BREEDS OF HORSES.
SCHEME FOR ENCOURAGING IMPROVEMENT IN THE BREEDS OF CATTLE.
SCHEME FOR ENCOURAGING IMPROVEMENT IN THE BREEDS OF SWINE.

PREFATORY NOTE.

Attention is directed to the following important modifications in the Live Stock Schemes for 1908:—

Horses. Clause 13. Applications for registration in respect of stallions already at stud in Ireland will not be accepted after 30th November, 1907.

Clause 14. Applications in respect of other stallions will not be accepted after 28th February, 1908.

Cattle. Clause 16. Only those bulls will be inspected for premiums the owners of which have given a written undertaking to the effect that when so required by the Department they will have their provisionally selected bulls duly entered in the herd-books of their respective breeds.

Further, County Committees may make such regulations as they think fit (a) with regard to requiring the owner of a premium bull not to keep any other bull on the farm on which such premium bull is located (Clause 21 (5)), and (b) in order to secure that selected applicants shall purchase such premium bulls only as are certified to have passed the tuberculin test.

Swine. Clause 10. Boars entered in the Royal Ulster Agricultural Society's Register for Ulster Swine shall be eligible for premiums.

Clause 13. The value of a premium in the case of such boars shall be £3 for each year.

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07.

SCHEME FOR ENCOURAGING IMPROVEMENT IN THE BREEDS OF HORSES.

1908.

GENERAL REGULATIONS.

1. The main objects of this scheme are to encourage the improvement of Horse Breeding in Ireland by inducing stallion owners to keep suitable and sound sires of a high degree of excellence, and by inducing farmers to retain their best young mares for breeding purposes. When arranging the details of this scheme to suit local requirements each County Committee of Agriculture and Technical

Instruction, or County Committee of Agriculture, as the case may be, hereinafter referred to as the County Committee, is requested to secure to small farmers as large a share of the resulting benefits as is practicable.

2. The sum to be provided by the Department under this scheme for encouraging improvement in the breeds of horses in a county will depend on—(1) the amount provided in aid of the scheme by local authorities, (2) the special needs of the locality, and (3) the proportion which the amount of the local contribution bears to the genuine capacity of the locality to contribute.

In accordance with Section 16 (6) of the Agriculture and Technical Instruction (Ireland) Act, 1899, the Department will not, in the absence of special considerations, apply or approve of the application of money under this scheme in a locality out of which aid is not given either by local authorities or from other local sources.

3. The joint fund available under this and other live stock schemes, comprising the grant from the Department and the money provided locally, will, subject to the approval of the Department, be administered in a county in accordance with the provisions of Clauses 6 and 7.

4. The Secretary of the County Committee, hereinafter referred to as the Secretary, whose appointment for the year and whose duties must first be approved by the Department, shall act as Secretary to the sub-committee for live stock.

5. It will be the duty of the Secretary to submit, for the approval of the Department, details of all schemes proposed for his county.

No action shall be taken by any local authority towards putting this scheme into operation until the sanction of the Department has been obtained in writing.

6. The County Council should by resolution delegate to the County Committee full powers for the purposes of the Agriculture and Technical Instruction (Ireland) Act, 1899, and that Committee should appoint from among their own members an executive sub-committee for live stock.

No payment, however, in connection with this scheme shall be authorised except by the County Committee.

7. The duties of the sub-committee for live stock will be to frame the details of the live stock schemes for the county in accordance with the conditions of the Department's general scheme, and to act as the executive committee for the administration of such county schemes when they have been approved by the County Committee and by the Department, but the executive sub-committee shall not have the power of authorising any payment in connection with these schemes.

8. The joint fund available under this scheme shall, after the expenses of administration are provided for, be applied solely for nominations of mares.

* 9. In the event of there not being a sufficient number of registered stallions in any county for the purposes of this scheme, the Depart-

ment may provide for such county, under certain conditions to be prescribed by them, in either of the following ways, viz.:—

(1.) By assisting approved applicants, whether individuals or associations, to buy suitable stallions under the Department's scheme of loans for the purchase of stallions.

(2.) By giving subsidies, upon terms to be prescribed, for approved stallions in the hands of private owners, who are prepared to send such stallions to districts to be approved by the Department.

REGISTRATION OF STALLIONS.

10. Thoroughbred stallions may be registered for any county in Ireland.

All Clydesdale and Shire stallions registered in 1907 may again be offered for registration under this scheme for the particular districts in which they were registered during that year, but no other stallions of these breeds will be accepted for registration in 1908 except for the Province of Ulster, the counties of Dublin and Louth, and the district comprised within a radius of ten miles of the city of Cork.

Irish Draught and Half-bred stallions may be accepted for any county in Ireland.

11. The Department will publish a Register of Thoroughbred, Clydesdale, Shire, Irish Draught and Half-bred Sires approved for service under this scheme. Owners of suitable stallions are invited to apply to have their horses placed on the Register, subject to the provisions of this scheme. A stallion, to be entitled to a subsidy in the form of nominations, or otherwise, must be registered or accepted for registration in the Department's Register of Stallions for the year 1908.

Copies of the Register, when published, may be had free of charge on application to the Department.

12. (1.) Owners offering their stallions under this scheme must, if required, submit them to inspection and veterinary examination by the Department. Notice of the arrangements as to place and method of inspection will be given.

(2.) Thoroughbred stallions, to qualify for registration, must be entered in Weatherby's Stud Book, or, if Clydesdale or Shire, be entered in the stud book of the respective breed. If required the stallion owner or (if the stallion is being purchased with a view to registration in Ireland) the vendor must produce a certificate from the keeper of the stud book to the effect that the stallion offered for registration is entered in the stud book or will duly appear in the next volume.

(3.) No application will be considered in which every particular required in the form of application is not supplied.

(4.) No application in respect of a two-year-old stallion will be considered.

(5.) The owner of a stallion accepted under this scheme must agree to permit that stallion to serve not less than twenty, nor more than fifty nominated mares, which are entitled to his services.

This regulation is subject, however, to the conditions stated in Clauses 22 (9 and 10) and 30.

(6.) Stallions approved under this scheme will be accepted for particular districts only, and shall not, without the written consent of the Department, be removed to other districts. If a stallion is removed without such consent to a district for which he was not accepted, the name of such stallion shall be removed from the Register.

13. Forms of applications for the purposes of this scheme may be had from the Department.

One of these forms, accurately filled up in every particular and signed by the owner or his agent, must be lodged in or sent by post so as to reach the offices of the Department not later than the 30th day of September, 1907.

Applications received subsequent to that date, and before the 30th day of November, 1907, must be accompanied by a fee of £5.

Applications for registration in respect of stallions already at stud in Ireland will not be accepted after the 30th day of November, 1907.

14. (1.) Applications in respect of stallions imported into Ireland after the 30th day of September, 1907, or for stallions in Ireland which have not previously been used for stud purposes, will be considered without fee if received on any date up to the 28th February, 1908. Their entry in the published Register for 1908 cannot, however, be guaranteed, but the owners of such stallions will be accorded all the privileges enjoyed by the owners of stallions appearing in the printed Register.

(2.) Persons in Ireland intending to import stallions or to buy stallions already located in Ireland are advised not to complete the purchase until they have received formal notice in writing from the Department that the stallions in question have been accepted under this scheme. [See Clause 18.]

(3.) The Department will, as far as practicable, supply the services of their Inspectors free of charge to persons in Ireland intending to purchase and import suitable stallions for districts in which there is not a sufficient number of approved stallions for the purposes of this scheme; and the stallion must have been seen and provisionally approved by the intending purchaser.

(4) The vendor of a pure-bred sire must, if required, submit a certificate from the Secretary of the stud book to the effect that the animal is entered in the stud book, or will duly appear in the next volume.

15. Stallions may be inspected for their general merit and fitness for the purposes of the scheme. Such inspection shall be carried out by one or more Inspectors appointed by the Department. If the stallion has been to stud, evidence of his fruitfulness, and, where practicable, of the character of his stock, must be produced, if required. Inspection for general fitness, when deemed necessary, shall, as far as possible, precede veterinary examination.

16. (1.) The veterinary examination shall be carried out by one or more qualified Veterinary Surgeons, appointed by the Department.

(2.) No stallion shall be rejected as unsound unless suffering from one of the following diseases:—Cataract, Roaring, Whistling, Ringbone, Sidebone, Unsound Feet, Spavin, Curb.

17. The inspection for general merit and fitness and the veterinary examination of stallions may be dispensed with in cases where evidence of suitability and soundness have been sufficiently established to satisfy the Department.

The Department, however, shall have the right to inspect an accepted stallion at any time.

18. The Department cannot undertake to disclose their reasons for the non-acceptance of any animal, but with the exceptions hereinafter mentioned the owner of any stallion in Ireland not accepted may have his case reconsidered by one or more referees appointed by the Department. Every notice of appeal must be accompanied by a fee of £5, which will be returned in the event of the appeal being upheld. Notice of appeal must be given in writing within ten days from the date of the letter of rejection.

This privilege shall not extend to cases in which stallions have been rejected on appeal in a previous year or to cases in which stallions are offered under Clause 14 (1 and 2).

19. The Department reserve to themselves the right, without assigning any reason, or without inspection or veterinary examination, to decline to place or retain on the Register any stallion for the purpose of this scheme.

No right of appeal shall lie in the case of stallions rejected under this clause.

20. Owners of stallions making, or promising to make, any gift to the owner of a nominated mare of a portion of the service fee, allowing a nominated mare to be served by a stallion other than that originally selected by the owner of the mare, or detected in any other fraudulent practices in connection with this scheme, shall have their horses struck off the Department's Register, and shall be debarred from obtaining any future benefit under the Department's schemes. They shall also forfeit any claim in respect of monies—due to them under this scheme.

NOMINATIONS OF MARES.

21. (1.) Upon consecutive dates, and at places to be first approved by the Department, exhibitions of farmer's mares shall be held in each county for the purpose of issuing nominations.

(2.) Wherever practicable, and in order to avoid unnecessary expense, two exhibitions should be held on one day at two centres, *i.e.*, one in the morning and one in the afternoon.

(3.) The County Committee shall give due notice to farmers in the county of the dates, &c., fixed for such exhibitions by means of posters, advertisements in the local newspapers, circulars, or such other method as may be deemed by the Committee to be the most effective and economical for the purpose.

(4.) The Secretary must send to the Department two copies of each such poster, advertisement, circular or other notice as soon as issued.

(5.) The Secretary shall receive entries for each exhibition on forms to be obtained from him. Each form must be signed by the

owner of the mare, who must certify on the form that all the particulars given thereon are correct. Further, if required, this certificate must be attested by a magistrate.

22. (1.) Mares to receive nominations must be the *bona-fide* property of a farmer resident in the county (with the exception of the case provided for in No. 4 of this clause).

(2.) In order to secure the second of the main objects stated in Clause 1 of this scheme, preference will be given to the best young mares under six years of age.

(3.) Each mare must be the *bona-fide* property of a farmer, the tenement valuation in aggregate of whose holding or holdings, wherever situated, and for which he is rated, does not exceed the limit fixed by the County Committee.

Subject to such conditions as may be prescribed by the Department, herds' mares will be eligible to compete for nominations.

(4.) A farmer whose holding extends into more than one county may apply for a nomination in any one of the counties in which he holds land, provided the aggregate tenement valuation of the holdings, wherever situated, and for which he is rated, does not exceed the limit fixed under (3) for the county in which he proposes to compete.

(5.) The mares to receive nominations shall be selected by a judge or judges appointed by the Department, and they must be passed free from any hereditary disease by a Veterinary Surgeon appointed for that purpose by the Department.

(6.) No farmer shall receive more than one nomination, unless the number of mares selected and reserved be insufficient for the granting of the full number of nominations allotted to the county, in which case a second nomination may be awarded.

(7.) At each local exhibition eligible mares not selected for nominations shall be placed on a reserved list in strict order of merit.

(8.) Owners of accepted stallions have a right to require hobbles to be used.

(9.) Owners of accepted stallions may refuse service to mares suffering from a contagious disease; but the reasons for such refusal must be intimated immediately to the Department and to the County Committee by the stallion owner. Mares can be served only at their owners' risk.

(10.) The County Committee may restrict nominations to any one or more of the breeds of stallions on the Register.

(11.) The County Committee may, with the approval of the Department, refuse a nomination for any mare, without assigning any reason therefor.

(12.) The County Committee, if they deem it advisable, may, for the purpose of identification, brand all mares selected for nominations.

(13.) The County Committee, if they think fit, may require the owner of each nominated mare to deposit a sum not exceeding £2, such deposit to be refunded if the mare is served by the selected stallion or to be forfeited to the Committee in the event of the

owner failing without sufficient cause to have the mare served by such stallion.

(14.) The County Committee may, if they think fit, make regulations which will render a farmer who, without sufficient cause, fails to send his nominated mare to the selected stallion, ineligible to enter mares for nominations in subsequent years.

23. The term "farmer" is to be understood to mean a person who derives his means of living mainly from farming.

24. (1.) The lists of owners of mares selected for nomination and of mares reserved must be submitted to the Department by the Secretary, within six days after the date of the last exhibition in the county, on the form supplied for the purpose.

(2.) The dockets for the selection of stallions and the service tickets will be supplied to the Secretary, when such form, complete, has been received by the Department. The selection dockets and service tickets shall then be filled in by the Secretary, who shall return them to the Department for the necessary check and authorisation for issue.

(3.) The Secretary, before issuing the selection docket, shall date it.

(4.) The service ticket must not be issued by the Secretary until the owner of the mare has returned to him the selection docket with the name of the selected stallion duly entered thereon by the said owner.

(5.) Not later than eighteen days from the date of issuing of the service tickets, the Secretary shall forward to the Department, on the form provided for the purpose, particulars regarding the distribution of such tickets.

25. (1.) A farmer receiving a nomination must select one of the approved stallions in Ireland of the breed named by the County Committee under Clause 22 (10), provided the service list of the stallion selected is not already full. See Clause 26 (2).

(2.) Such farmer must insert on the selection docket the name of the stallion by which he wishes to have his mare served, and must return said docket so as to reach the Secretary not later than sixteen days from the date of issue of such docket.

He must also transmit with the docket the amount of the deposit, if any, fixed by the County Committee under Clause 22 (13).

26. In any one of the following cases the nomination shall be forfeited and shall lapse:—

(1.) If the farmer to whom a nomination is issued should fail to select a stallion within the sixteen day limit.

(2.) If the owner of the mare is also the owner of the stallion selected.

(3.) If the farmer to whom a nomination is issued should permit his nominated mare to be served by a stallion other than that originally selected.

(4.) If the nominated mare should die before first service.

(5.) If the nominated mare should be sold before the date of the first service.

The Secretary shall cancel and return to the Department the numbered tickets for all such lapsed nominations, and may issue to the owners of mares strictly in the order in which they appear

on the reserve list new tickets to be obtained from the Department in lieu of such cancelled tickets.

27. A nomination is not transferable, and is available only for the selected mare.

28. The service season shall be reckoned to begin on the 1st day of March, 1908, and to terminate on the 31st day of July, 1908.

29. The value of the nomination fee shall be uniform for the county, but may vary with the breed of stallions selected, and shall not be less than £2, or more than £3.

30. (1.) When the service fee exceeds the value of the nomination, the excess shall be paid by the owner of the mare to the owner of the stallion at the time of the first service, or at such other time as may be agreed upon between them.

(2.) In addition, the farmer shall pay a groom's fee of 2s. 6d. for each nominated mare.

31. (1.) Not earlier than the 1st August, 1908, and not later than the 1st October, 1908, the owners of stallions shall forward to the Secretary the selection docket and the service tickets for the services effected by their sires, accompanied by a statutory declaration to the effect that the conditions of service have been duly complied with.

(2.) The form of declaration required under this clause may be had on application to the Secretary.

(3.) The Secretary shall examine and check all these documents, and when certified by him as correct shall forward them to the Department.

(4.) Payment of nomination fees to owners of stallions shall not be made until the Department have been satisfied as to the fulfilment of the conditions of this scheme, and have signified in writing their approval of each particular payment.

32. No payment shall be made in any of the following cases—

(1.) Where any erasure or alteration appears on either the selection docket or the service ticket.

(2.) Where both the selection docket and the service ticket bearing corresponding numbers are not produced.

(3.) Where a nomination issued in respect of a particular nominated mare is used for another mare, whether nominated or not.

(4.) Where service has been effected by a stallion other than that originally selected.

(5.) Where an owner who received a nomination failed to send his mare for service.

(6.) Where the owner of a stallion fails to lodge by 1st October, 1908, with the Secretary, in the manner provided in Clause 31, his claim for payment of nomination fees.

33. Owners of mares accepting, or agreeing to accept, from a stallion owner, portion of the service fee, changing nominations, substituting mares, or detected in any other fraudulent practices in connection with these regulations shall be debarred from obtaining any future benefits under the Department's schemes.

34. In all cases of dispute in matters connected with this scheme the decision of the Department shall be final.

SCHEME FOR ENCOURAGING IMPROVEMENT IN THE BREEDS OF CATTLE.

1908.

1. The main objects of this scheme are to improve the dairy and store cattle in Ireland by encouraging the breeding or introduction of pure bred bulls of a high degree of excellence, and by inducing associations of farmers or persons of means to purchase high class bulls for the use of small farmers.

2. The sum to be provided by the Department under this scheme for encouraging improvement in the breeds of cattle in a county will depend on—(1) the amount of money provided in aid of the scheme by local authorities, (2) the special needs of the locality, and (3) the proportion which the amount of the local contribution bears to the genuine capacity of the locality to contribute.

In accordance with Section 16 (6) of the Agriculture and Technical Instruction (Ireland) Act, 1899, the Department will not, in the absence of special considerations, apply, or approve of the application of money under this scheme in a locality out of which aid is not given either by local authorities or from other local sources.

3. The joint fund available under this and other live stock schemes, comprising the grant from the Department and the money provided locally, will, subject to the approval of the Department, be administered in a county by the County Committee of Agriculture and Technical Instruction, or County Committee of Agriculture as the case may be, hereinafter referred to as the County Committee, in accordance with the provisions of Clauses 6 and 7.

4. The Secretary of the County Committee, hereinafter referred to as the Secretary, whose appointment for the year and whose duties must first be approved by the Department, shall act as Secretary to the sub-committee for live stock.

5. It will be the duty of the Secretary to submit, for the approval of the Department, details of all schemes proposed for his county.

No action shall be taken by any local authority towards putting this scheme into operation until the sanction of the Department has been obtained in writing.

6. The County Council should by resolution delegate to the County Committee full powers for the purposes of the Agriculture and Technical Instruction* (Ireland) Act, 1899, and that Committee should appoint from among their own members an executive sub-committee for live stock.

No payments, however, in connection with this scheme shall be authorised except by the County Committee.

7. The duties of the sub-committee for live stock will be to frame the details of the live stock schemes for the county in accordance with the conditions of the Department's general scheme, and to act as the executive committee for the administration of such county schemes when they have been approved by the County Committee and by the Department; but the executive sub-committee shall not

have the power of authorising any payment in connection with these schemes.

8. The joint fund available under this scheme shall, after the expenses of administration are provided for, be applied solely in providing premiums for bulls.

9. In exceptional circumstances the Department may, under certain conditions to be prescribed by them, provide for a county either by purchasing bulls on behalf of applicants selected by County Committees under Clause 17, or by granting loans to approved applicants who desire to purchase bulls through the Department.

Applications for loans under this clause must be made—by the selected individuals—directly to the Department not later than 1st March, 1908.

10. Subject to the approval of the Department, premiums may be restricted to any one or more breeds of pure-bred bulls.

11. Only bulls entered, or qualified by pedigree for entry, in the herd books of their respective breeds shall be eligible for premiums. The owner of a bull not entered must, if required, produce a certificate from the secretary of the herd book to the effect that the bull is eligible for entry and will duly appear in the next volume.

12. Bulls of the following ages are eligible to compete for premiums:—

- (1.) Yearlings, calved between 1st September, 1906, and 1st May, 1907;
- (2.) Two-year-olds, calved between 1st September, 1905, and 31st August, 1906;
- (3.) Three-year-olds, calved between 1st September, 1904, and 31st August, 1905;
- (4.) Four-year-olds, calved between 1st September, 1903, and 31st August, 1904.

All bulls must show a high degree of excellence. Two-year-olds, three-year-olds, and four-year-olds which show signs of having been badly cared, or which are not fully developed, will not be selected.

13. The amount of a premium for a high-class bull payable subject to the regulations of this scheme, at the close of the season, shall be £15, save in respect of the poorer parts of the West of Ireland for which special provision will be made by the Department. Where special provision for the use of Galloway, Kerry, Dexter, Welsh, and Ayrshire bulls is made with the approval of the Department, the value of the premiums shall be £10.

14. The owners of all two-year-old, three-year-old, and four-year-old bulls applying for premiums under this scheme must, if required, produce evidence of the fruitfulness of the bulls in the preceding year.

15. (1.) Bulls which were awarded premiums in 1907 will be inspected by the Department prior to the spring shows and sales, at places and on dates of which the owners will be duly advised by the Department.

In no case will animals be inspected at the owner's residence.

(2.) Owners of such bulls failing to present their animals for inspection on the dates selected will not have their cases reconsidered.

(3.) The Department will furnish the County Committee with a list of bulls which have been passed under this clause as eligible for premiums in 1908.

(4.) The County Committee shall then proceed to select applicants for premiums for bulls to be selected at any of the principal shows or sales of bulls. In making such selections regard shall be had to the needs of the various districts in the county, provided that no two bulls of the same breed shall be located in the county within three miles of each other.

(5.) Bulls provisionally selected for a premium under this clause must stand for service at the same place as in 1907, and unless in exceptional circumstances approved by the Department, owners of selected bulls will not be allowed to change the premium to a yearling bull.

16. Bulls, of the ages specified in Clause 12, other than those referred to in Clause 15 (3), shall be selected at the principal spring shows and sales. The provisional selection of bulls for premiums at these shows and sales shall be made by the Department alone.

Only those bulls will be inspected for premiums the owners of which have given a written undertaking to the effect that when so required by the Department they will have their provisionally selected bulls duly entered in the herdbooks of their respective breeds.

Intending purchasers must make their own selection from the list of animals passed by the Department.

17. (1.) The County Committee shall, by means of advertisements in the local papers or by posters, invite applications from persons who, if selected, are prepared to keep in districts not provided for in Clause 15 (3 and 5) premium bulls to be purchased or exhibited at one or other of the principal shows or sales. Such applications must be made on forms to be obtained from the Secretary.

(2.) A list of such applicants, when selected by the County Committee, should be forwarded to the Department by the Secretary, on the form provided for that purpose, not later than five days before the show or sale at which the bulls are to be selected.

(3.) The Department's Inspector or Inspectors will attend at the principal shows and sales. They shall not be empowered to recognise applications from any persons attending the shows or sales whose names are not on the list supplied by the Secretary as having been duly selected to keep a premium bull.

(4.) Applicants selected by a County Committee who exhibit or purchase at one of the principal shows or sales provisionally selected bulls of the breeds approved by the County Committee need not again show these bulls in 1908 for a premium. The granting of a premium to a bull shall not in any way be regarded as affording a right to a premium in a subsequent year.

(5.) As soon as a selected applicant has procured a bull which has been provisionally passed for a premium he should notify the Secretary on a form to be obtained from the latter for the purpose. The Secretary shall thereupon advise the Department on the prescribed form of the particulars as to location, &c., of the bull.

18. The service season for a premium bull shall not commence until the owner of the bull has been informed by the Secretary that

the Department have approved of the selection of the bull for a premium. It will be the duty of the Secretary to obtain the sanction, in writing, of the Department with the least possible delay.

The service season for premium bulls shall close on 31st December, 1908.

19. The Secretary shall supply the owner of each premium bull under this scheme with posters, which such owner must undertake to distribute in the district in which the bull is to serve.

20. Each premium yearling bull shall serve not less than thirty cows, and all other premium bulls not less than forty cows each, other than those that are the property of the owner of the bull. The service fee for the number of cows stated shall in all cases be 1s. each, inclusive of all charges. After the minimum number of cows have been served the owner may fix such fee as he may desire.

21. The County Committee may make such regulations as they think necessary with regard,

- (1) to the inclusion or otherwise of four-year-old bulls,
- (2) to requiring applicants for premiums to deposit with their application a sum not exceeding £2 in respect of each bull—such deposit to be refunded in case the applicant is not selected by the County Committee or if he procured a premium bull. The deposit to be forfeited to the County Committee in the event of the applicant omitting to procure a premium bull,
- (3) to the number of premium bulls which any one person may keep, provided that no person shall possess two premium bulls of the same breed unless located at least three miles from each other,
- (4) to the place in which a premium bull shall remain during the season for service,
- (5) to requiring the owner of a premium bull not to keep any other bull on the farm on which such premium bull is located,
- (6) to the penalties to be imposed upon the owner of a premium bull who fails to take proper care of the animal,
- (7) to the number of cows to which any one farmer may send to a premium bull,
- (8) to requiring owners of premium bulls to exhibit their animals at some one of the shows subsidised by the County Committee,
- (9) to requiring owners of premium bulls to retain their animals in the district until 1st September, 1908,
- (10) to cancelling the award of a premium to a bull which is sold out of the country before it has served the prescribed number of cows, and
- (11) to the exclusion of pedigree cows from this scheme.

22. Each cow shall be the property of a farmer resident in the county, the aggregate tenement valuation of whose holding or holdings wherever situated and for which he is rated, does not exceed the limit fixed by the County Committee.

Herds, artisans and *bona-fide* agricultural labourers may obtain service for their cows on the same terms as farmers.

23. The term "farmer" is to be understood to mean a person who derives his means of living mainly from farming.

24. The owner of a premium bull shall not, before the stipulated number of cows have been served, reserve the use of the bull for the cows of any individual or of the members of any society. He must, subject to the provisions of Clause 30, allow the bull to serve cows in the order in which they are presented.

25. The Department reserve the right to brand or mark premium bulls, and to inspect them from time to time.

26. The Department also reserve the right to apply the tuberculin test, at their own expense, to any premium bull.

The County Committee may make such regulations as they think fit in order to secure that selected applicants shall purchase such premium bulls only as are certified to have passed the tuberculin test.

27. (1.) Not earlier than 1st September, 1908, and not later than 15th January, 1909, the owner of a premium bull shall forward to the Secretary on the prescribed form a return of the names, addresses, and valuations of the persons whose cows have been served by the bull, at the fee named in Clause 20, together with dates of such services.

(2.) The Secretary shall examine and check all such forms, and when certified by him as correct shall forward them to the Department.

(3.) As soon thereafter as the Department are satisfied as to the fulfilment of the conditions of this scheme the Secretary will be notified that payment of the premiums or part of the premiums payable under this scheme may be made to the owners of the bulls.

(4.) Any premium not applied for on or before 15th January, 1909, shall be considered as having lapsed.

28. All owners of premium bulls must satisfy the County Committee that they have provided themselves with a syringe and disinfecting materials for the washing of their animals after each service, in accordance with the instructions given in the Department's leaflet No. 13, on Contagious Abortion in Cattle.

It will be the duty of the Secretary to obtain the necessary information for the Committee, and to notify the Department at an early date of the results of his enquiries.

29. In the event of the bull being unable from any cause to complete the prescribed number of services, the Department reserve the right to withhold the premium, or any part of it, or in any other way to deal specially with the case, according as the circumstances may require.

30. The owner of a premium bull has the right to refuse the use of his bull in any case where he is satisfied that the service would be prejudicial to the animal. The reasons for such a refusal, however, must, immediately on the refusal of the application, be communicated to the County Committee, who may take such action as they think fit subject to the approval of the Department.

31. In all cases of dispute in matters connected with this scheme the decision of the Department shall be final.

SCHEME FOR ENCOURAGING IMPROVEMENT IN THE BREEDS OF SWINE.

1908.

Clauses 1 to 7, inclusive, of the Department's Horse and Cattle Schemes, 1908, shall, with the necessary modifications, apply to this scheme.

SWINE.

8. The system to be adopted in connection with this scheme for encouraging improvement in the breeds of swine shall be the provision of premiums for selected boars.

9. Subject to the approval of the Department premiums may be restricted to any one or more breeds of swine.

10. Only boars eligible for entry in the Herd-books of their particular breeds, in the Register of Pigs of the Royal Dublin Society, or in the Register of Ulster Swine proposed to be established by the Royal Ulster Agricultural Society, shall be selected for premiums. The owner of a boar selected for a premium must have the animal entered in the proper Herd-book or in the said Register as the case may be.

11. Boars belonging to any Society or to any Association of Farmers shall be eligible to compete for premiums; but the premiums shall be paid to the Society or Association, and not to the individuals in whose charge the boars are placed.

12. Boars when selected for the first year's premium should be not less than five months nor more than twelve months old. The grant of a premium to any boar shall not be regarded as affording any right to a premium in a subsequent year.

13. The value of a premium shall be £5 for the first year, and £3 for the second year, provided however that in the case of boars entered in the Register of Ulster Swine the value of the premium shall be £3 in the first year.

14. Only those boars which were awarded first year premiums in 1907 shall be eligible for second year premiums in 1908. All such boars must show a high degree of excellence. Two-year-old boars which show signs of having been badly cared or are not fully developed will not be selected.

The owner of a boar selected for a second year premium must produce evidence of the fruitfulness of the boar in the preceding year.

15. A boar which may be awarded a premium in 1908 out of funds administered by any other body shall not be eligible for a premium under this scheme.

16. (1.) Boars which were awarded first year premiums in 1907 will be inspected by the Department at places and on dates of which the owners will be duly advised by the Department.

(2.) Owners of such boars failing to produce their animals for inspection on the date selected will not have their cases reconsidered.

(3.) The Department will furnish the County Committee with a list of boars which have been passed under this clause as eligible for premiums in 1908.

(4.) The County Committee shall then proceed to select applicants for premiums for young boars. In making such selection regard shall be had to the needs of the various districts in the county, provided that no two boars of the same breed shall be located in the county within three miles of each other.

(5.) Boars provisionally selected for a premium under this clause must stand for service at the same place as in 1907, and unless in exceptional circumstances approved by the Department, owners of selected boars will not be allowed to change the premium to a yearling boar.

17. (1.) The County Committee shall by means of advertisements in the local papers or by posters, invite applications from persons who, if selected, are prepared to keep premium boars in districts not already provided for under Clause 16 (5) of this scheme. Such applications must be made on forms to be obtained from the Secretary.

(2.) As soon as a selected applicant has procured a boar which has been provisionally passed for a premium he should notify the Secretary on a form to be obtained from the latter. The Secretary shall thereupon advise the Department on the prescribed form of the particulars as to the location, &c., of the boar.

18. The provisional selection of boars for premiums shall be made by the Department alone at the principal spring shows and at other places to be fixed by the Department, but no inspection for the purpose of this scheme shall be made after the 30th June, 1908, save in exceptional circumstances.

19. The Department through the County Committee, will as far as practicable assist intending purchasers to secure suitable boars for the purposes of this scheme.

20. The service season for a premium boar shall not commence until the owner of the boar has been informed by the Secretary that the Department have approved of the selection of the boar for a premium. It will be the duty of the Secretary to obtain the sanction (in writing) of the Department with the least possible delay. The service season for premium boars shall close finally on the 31st December, 1908.

21. The Secretary shall supply the owner of each premium boar under this scheme with posters, which the said owner must undertake to distribute in the district in which the boar is to serve.

22. Each yearling premium boar must serve not less than 30 sows, and each two-year-old boar not less than 40 sows. The service fee, inclusive of all charges for this number of sows, shall not exceed 1s. for each sow. After the minimum number of sows have been served, the owner of the boar may fix such fee as he may desire.

23. The County Committee may make such regulations as they think necessary with regard—

(1.) to the breed or breeds of boars to be selected,

(2.) to the number of premium boars which any one applicant may possess, (provided no person shall possess two premium boars

of the same breed unless located at least three miles from each other),

(3.) to the place in which a premium boar shall remain during the season for service,

(4.) to the penalties to be imposed upon the owner of a premium boar who fails to take proper care of the animal,

(5.) to the number of sows which any one farmer may send to a premium boar under this scheme,

(6.) to requiring owners of premium boars to exhibit their animals at some one of the shows subsidised by the County Committee, and

(7.) to requiring owners of premium boars to retain their animals in the district until 1st September, 1908.

24. Each sow shall be the property of a farmer resident in the county, the aggregate tenement valuation of whose holding, or holdings, wherever situated, and for which he is rated, does not exceed the limit fixed by the County Committee.

Herds, artisans, and *bona-fide* agricultural labourers may obtain service for their sows on the same terms as a farmer.

25. The term "farmer" is to be understood to mean a person who derives his means of living mainly from farming.

26. The owner or owners of a premium boar shall not, before the stipulated number of sows have been served, reserve the use of the boar for the sows of any individual, or of the members of any society. Subject to the provisions of Clause 30, sows must be served by a premium boar in the order in which they are presented.

27. The Department reserve the right to brand or mark premium boars, and to inspect them from time to time.

28. (1.) Not earlier than 1st September, 1908, and not later than 15th January, 1909, the owner of each premium boar shall forward to the Secretary on the prescribed form a return of the names, addresses, and valuations of the persons whose sows have been served by the premium boar—together with dates of such services—at the fee named in Clause 22.

(2.) The Secretary shall examine and check all such forms, and when certified by him as correct shall forward them to the Department.

(3.) As soon thereafter as the Department are satisfied as to the fulfilment of the conditions of this scheme, the Secretary will be notified that payment may be made to the owner or owners of the boar of the premium, or part of the premium, payable under this scheme.

(4.) Any premium not applied for on or before the 15th January, 1909, shall be considered as having lapsed.

29. In the event of a boar being unable, from any cause, to complete the prescribed number of services, the Department reserve the right to withhold the premium, or any part of it, or in any other way to deal specially with the case, according as the circumstances may require.

30. The owner of a premium boar has the right to refuse the use of his boar in any case where he is satisfied that the service would be

prejudicial to the animal. The reason for such refusal must, however, be communicated to the County Committee immediately on the refusal of the application.

31. In all cases of dispute in matters connected with this scheme the decision of the Department shall be final.

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LOANS FOR THE PURCHASE OF STALLIONS.

1908.

1. Applications for loans for the purchase of Stallions must be made—on the prescribed form (A. 37)—direct to the Department.

2. No application for a loan for the purchase of a Stallion will be considered if coming from a locality in which, in the opinion of the Department, there is already a sufficient number of approved Stallions for the purpose of their scheme.

No loans will be made save for the purchase of Stallions accepted by the Department under the Horse-breeding scheme for 1908.

The Department reserve the right to refuse any application for a loan without assigning any reason for such refusal.

3. The individual or association (hereinafter referred to as the applicant) applying for a loan must be approved by the Department.

4. The purchase price of the Stallion must be approved by the Department.

5. The applicant must pay to the Department (1) one-third of the approved purchase price, (2) the amount of the stamp duty, and (3) the premium for the insurance of the Stallion at the full amount of the approved purchase price—the payment to the Department of this premium must be secured under conditions similar to those provided for the repayment of principal and interest. (See 7 and 8).

6. On receipt by the Department of (1) one-third of the agreed on purchase money, (2) the necessary stamp duty, (3) the premium for insurance, and (4) a form of undertaking to have the necessary bond duly completed without delay, the Department will pay to the vendor the full amount of the agreed on purchase price, and will intimate to him that possession of the Stallion may be given up to the applicant.

If the vendor, before being paid by the Department, gives up possession of the Stallion, the Department will hold themselves free of any liability to the vendor.

7. As soon thereafter as possible the applicant, with two or more approved solvent sureties, shall enter into a bond to repay the Department the amount which will be advanced by them—viz., two-thirds of the purchase money—in five equal annual instalments, payable on the 1st November in each year, together with interest at

the rate of $2\frac{1}{2}$ per cent. on the outstanding balance. The first instalment shall be payable on the 1st November next succeeding the date of payment by the Department of the full purchase price to the vendor.

8. In the case of an association repayment must be guaranteed by the Committee of the association, or in such other manner as the Department may require.

9. The Stallion shall remain the property of the Department until all instalments and arrears of principal and interest are paid off, and shall not be disposed of, without the consent in writing of the Department, for five years.

10. The applicant must offer the Stallion each year for registration, must undertake to conform at all times to the regulations of the Department's scheme for the time being for encouraging improvement in the breeds of horses, and, during the continuance of the loan, must allow the Stallion to serve nominated Mares at a fee to be fixed by the Department.

Such fee, however, shall in no case exceed £3 per mare.

11. Nominated Mares the property of the members of an association purchasing a Stallion under this scheme shall not take priority of service over nominated mares owned by non-members.

As soon, however, as the number of nominated Mares required by the scheme may have been served, the service of the Stallion may be retained exclusively for the use of the members of such association.

12. The applicant must observe the following conditions:—

(1.) In the event of the horse becoming ill or lame, he must without delay give notice in writing or by telegram to the Department. Like notice must be given—

- (a) If the horse meets with any accident or injury, and
- (b) If the horse dies. In the latter event he must furnish at his own expense a certificate from a Veterinary Surgeon.

(2.) He must provide proper accommodation for the Stallion, and care him in a proper manner to the satisfaction of the Department.

(3.) He must procure at his own expense the services of a Veterinary Surgeon when necessary.

13. The Department shall have the right to inspect the Stallion at any time, and to remove him at any time, if it is found, in the opinion of the Department, that he is not being properly cared, or if an instalment of the principal and interest is in arrear for more than four weeks.

14. Should the Department grant a special subsidy in respect of the Stallion such subsidy shall not be paid to the individual or association in possession of the Stallion, but shall be credited, after the close of the season, towards the repayment of the loan.

15. The decision of the Department in all matters relating to these loans shall be final.

Forms of application can be had from the Department.

LOANS FOR THE PURCHASE OF BULLS. 1908.

1. Applications for loans for the purchase of Bulls must be made—on the prescribed form (A. 38)—direct to the Department before 1st March, 1908.

2. No application for a loan for the purchase of a Bull will be considered if coming from a locality in which, in the opinion of the Department, there is already a sufficient number of pure bred bulls for the purpose of their scheme. No loan will be granted save for the purchase of a pure bred bull, passed by the Department as suitable for a premium. The bull must be of a breed approved by the County Committee. The Department reserve the right to refuse any application for a loan without assigning any reason for such refusal.

3. The purchase price of a bull must be approved by the Department.

4. The person applying for a loan under this scheme—hereinafter referred to as “the applicant”—must purchase through the Department, who cannot undertake to consider applications for loans in respect of animals purchased without their knowledge, at shows, sales, or from private individuals. The Department will, as far as possible, endeavour to procure a suitable animal for the applicant, but they cannot undertake to supply a Bull at a price fixed by him.

5. Before taking possession of the Bull the applicant will be required to pay to the Department’s representative—(1) one-third of the approved purchase price, (2) the stamp duty, and (3) the charge for insurance (see Clause 9). Further, he must sign a form of undertaking to have the necessary form of guarantee for repayment duly signed and completed.

6. As soon thereafter as possible, the applicant and two approved solvent sureties shall sign a form of guarantee to repay to the Department the amount which will be advanced by them in two equal annual instalments, payable on the first day of April in each year, the first instalment to be payable on the first day of April in the year following that in which the bull was purchased, together with interest at the rate of $2\frac{1}{2}$ per cent. on the outstanding balance.

7. In the case of an association the person in whose charge the Bull is to be placed must, with two other approved members of the association in their capacity of private individuals, guarantee repayment of the loan.

8. The Bull shall remain the property of the Department until all instalments of principal and interest are paid off.

9. The applicant must insure the Bull for the full amount of the purchase price with the Department. The fee for insurance against death shall be 5 per cent. on the full amount of the purchase price, and shall be paid to the Department.

10. The applicant shall state which of the following systems of insurance he will elect to take. Once the applicant has made his choice he will not be permitted to make any change.

System A.

The Department will insure the bull with an insurance company for twelve months only from the date of payment of the insurance fee by the applicant. In the event of the death of the Bull before the expiration of the twelve months in question the loan will be cleared off and the applicant will be refunded the part of the purchase price which he deposited with the Department on getting possession of the Bull, less interest on loan to date of death of the Bull. Under this system it will be optional with the applicant to insure the bull for a second year.

System B.

The Department, subject to all the regulations of this scheme being complied with, will themselves insure the Bull on the following terms as from the date of payment of the insurance fee until the loan has been paid off, provided that in no case shall the insurance cover a period longer than two years from the date of payment of such fee :—

(a.) In the event of the death of the Bull before the first instalment becomes payable to the Department, a sum equal to three-fourths of the loan will be credited by the Department in reduction of the amount due by the applicant in respect of loan and interest.

(b.) If the Bull dies before the second instalment becomes payable, provided the first instalment was paid to the Department before the expiration of the period allowed for repayment thereof, under Clause 6, a sum equal to one-half of the original loan will be credited by the Department in reduction of the balance due by the applicant in respect of loan and interest.

The insurance, however, shall be cancelled (1) in the event of the first instalment not being paid within the period prescribed under Clause 6, or (2) in case of the non-observance of any one of the conditions of this loan scheme. In either case all moneys paid under this system of insurance shall be forfeited to the Department.

11. The applicant must observe the following conditions :—

(1.) In the event of the Bull getting ill or lame he must, without delay, give notice in writing or by telegram to the Department. Like notice must also be given (a) in the event of any accident or injury occurring to the Bull and (b) in case of the death of the Bull.

(2.) He must take all reasonable precautions to prevent the Bull from coming in contact with any animal suffering from disease.

(3.) He must provide proper accommodation for the Bull and care him in a proper manner, to the satisfaction of the Department.

(4.) He must procure at his own expense a syringe and disinfecting materials for the washing of his Bull after each service, in accordance with the instructions given in the Department's leaflet No. 13 on contagious abortion in Cows.

(5.) He must procure at his own expense the services of a veterinary surgeon when necessary.

(6.) In the case of the death of the Bull he must forward a certificate from the veterinary surgeon or such other evidence as to the cause or fact of death as the Department may require.

12. The granting of a loan does not imply that a premium will be awarded in respect of the Bull.

Should the Bull be awarded a premium (1) the person in whose favour the loan is being granted must conform to the regulations of the Department's scheme for the improvement of the breeds of cattle, or any modifications therein made, with the approval of the Department, by the County Committee; and (2) the amount of such premium shall be paid to the applicant, after the provisions of the general scheme have been complied with.

13. The Department shall have the right —

(a) to inspect the Bull at any time, and to remove him at any time, if it is found, in the opinion of the Department, that he is not being properly cared, or in the event of an instalment of principal and interest being in arrear for more than four weeks;

(b) to brand or mark the Bull;

(c) to apply the tuberculin test, at their own expense, to any Bull purchased under this scheme.

14. The decision of the Department in all matters relating to these loans shall be final.

Forms of application for loans can be had from the Department.

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SUBSIDIES TO AGRICULTURAL AND INDUSTRIAL SHOWS AND SKILLED LABOUR COMPETITIONS, 1908.

1. In 1908 County Committees of Agriculture may, subject to the approval of the Department and to the conditions of this scheme, make grants in aid of—

(a) Established Agricultural, Poultry, Horticultural, and Farm Produce Shows, held under the auspices of an Agricultural Society;

(b) Industrial Shows or Exhibitions and Feiseanna; and

(c) Skilled Labour Competitions, Ploughing Matches, etc., and Implement Trials.

2. A Show Society, or other body, proposed to be subsidised under this scheme by a County Committee, must furnish, not later than 1st February, 1908, to the Department, through such County Committee, the following particulars in respect of each Show held by the Society in 1907, viz.,—

(1.) An audited balance sheet, setting forth in detail the financial position of the Society after all liabilities have been discharged and also

- (2.) If required, a list certified by the Secretary of the Show Society, setting forth the amounts actually collected in local subscriptions from private individuals in 1907.

Any Society which fails to furnish these particulars, or such further information as the County Committee and the Department may require, shall not be eligible to receive a subsidy.

3. In allocating the funds available under this scheme County Committees should consider the claims of the various Shows held in the county and the special requirements of particular districts.

The County Committee in allocating a grant to any particular show, and the Department in approving of such grant, will take into consideration :—

- (1.) The amounts actually collected in local subscriptions from private individuals in 1906 and 1907.
- (2.) The total value of prizes awarded in 1907, and the cost of administration.
- (3.) The regard paid by the Society to the furtherance of the Department's Live Stock, Poultry, and other County Schemes.
- (4.) The amount set aside for classes confined to small farmers.

4. The prize schedule for 1908 must, prior to publication, be submitted through the County Committee to the Department for approval in writing. Non-compliance with this regulation may entail the cancellation of the grant from the County Committee in 1908.

The Department will not consider any schedule which has not previously received the approval of the County Committee.

5. The joint contribution from the County Committee and the Department must be acknowledged in the prize schedule.

6. In the case of Live Stock Shows, other than shows confined to Horses, provision must be made in the schedule of prizes for the inclusion of classes for Sheep and also for Poultry of the breeds subsidised by the County Committee.

7. Each Society receiving a subsidy under this scheme shall, if required, afford all reasonable facilities for the inspection of their books by the Department, and shall admit the Department's Inspectors to the judges' ring during all adjudications on the day of the Show,

8. A portion of the joint fund available under this scheme may be given to new Show Societies, provided the County Committee and the Department are assured :—

- (1.) That there is need for such new societies in the county ;
- (2.) That adequate local support is forthcoming ; and
- (3.) That the rules and financial proposals of the Society are deemed satisfactory.

9. Only in very exceptional circumstances will the Department be prepared to sanction the holding of local exhibitions of live stock for the award of prizes by a County Committee.

10. The cost of employing judges must be defrayed by Show Societies out of their own funds. The Department cannot undertake to supply

the services of a Judge or Demonstrator for any Show or local exhibition as they have done in previous years.

If the County Committee approve, one or more of the Instructors employed under Agricultural Schemes may be permitted, for the purpose of giving demonstrations, to attend a show subsidised by a County Committee.

11. (1.) Immediately after the Show or competition the Secretary of the Society shall furnish to the County Committee a certificate as to the total amount actually awarded in prizes, exclusive of cups and presentation prizes (the value of which should be stated separately), and the County Committee shall forward such certificate to the Department.

(2) As soon as the Department are satisfied as to the fulfilment of the conditions of this scheme, the County Committee will be notified that payment may be made to the Show Society or other body of the full amount of the subsidy or part of the subsidy as the case may be.

(3) In the event of the total sum actually awarded in prizes at any Show or competition being less than the sum originally voted by the County Committee, the Show Society or other body managing the show or competition shall not be entitled to receive payment from the joint fund of any sum exceeding the amount actually awarded in prizes, exclusive of cups and presentation prizes.

12. In all cases of dispute in matters connected with this scheme the decision of the Department shall be final.

The Department recommend that each Agricultural or other Show Society receiving a subsidy under this Scheme should invite the County Committee to nominate one or more representatives to act on the Show Committee.

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SCHEME FOR ENCOURAGING IMPROVEMENT IN THE FLAX-GROWING INDUSTRY, 1907-8.

The following programme has been adopted by the Department for encouraging improvement in the flax-growing industry during the season 1907-8.

I.—FIELD EXPERIMENTS.

Variety tests and manurial experiments will be continued. The object of these experiments is to ascertain the relative value of various varieties of flax seed and the influence of certain manures on the yield and quality of the flax crop. Experiments on seed selection may also be undertaken. A report on the experiments carried out in 1906 will be published in the Department's *Journal* and will be distributed in leaflet form.

II.—COLLECTION OF STATISTICS.

Statistics with reference to the flax crop will be again collected through the managers of co-operative flax societies.

III.—VISIT TO THE CONTINENT.

Arrangements will be made for the visit of a limited number of Irish flax-growers to certain flax-growing districts on the Continent.

Only those persons will be sent who, in the opinion of the Department, are likely to provide a useful report for the benefit of those interested in the cultivation of flax in Ireland.

IV.—FORMATION OF FLAX SOCIETIES.

The Department, subject to conditions to be prescribed by them, are prepared in a limited number of cases to assist farmers in establishing co-operative flax societies by paying a portion of the salary of an approved manager for a period not exceeding three years.

Applications for assistance of this nature should be made to the Secretary of the Department. As soon as the Department are satisfied that the conditions are favourable for the formation of a society, an organizer will be sent to the district.

V.—PRIZES FOR GROWERS, &c., OF FLAX.

County Committees of Agriculture in the flax-growing counties may adopt either or both of the following sections :—

- (A.) Prizes for scutched flax.
- (B.) Prizes for flax on foot.

SECTION A.

For the purpose of this section a county may be divided into districts in each of which a show of scutched flax may be held, at which it is suggested the following prizes be offered :—

(A.)—Growers.

First prize,	.	.	.	3 bags flax seed.
Second prize,	.	.	.	2 " "
Third prize,	.	.	.	1 bag "

(B.)—Scutchers.

Scutchers employed in the mill where the first prize lots were scutched ;

2 bags flax seed.

Scutchers employed in mills where the second prize lots were scutched :—

1 bag flax seed.

(C.)—Other employees.

For other persons employed in the mill where the first prize lots were scutched ;—

2 bags flax seed.

Similar employees in mills where the second prize lots were scutched :—

1 bag flax seed.

(D.)—Mill-owners.

This class may be omitted if the County Committee so desire.

Owners of mills in which the first prize lots were scutched :—

2 bags flax seed.

Owners of mills in which the second prize lots were scutched :—

1 bag flax seed.

SECTION B.

For the purpose of this section the county may be divided into districts, in each of which prizes for flax on foot may be offered, *e.g.* :—

(a.) For growers the valuation of whose holding does not exceed £10, and who grow at least half a statute acre of flax.

(b.) For growers the valuation of whose holding exceeds £10 but does not exceed £25, and who grow at least one statute acre of flax.

(c.) For growers the valuation of whose holding exceeds £25 but does not exceed £50, and who grow at least two statute acres of flax.

(d.) For growers the valuation of whose holding exceeds £50, and who grow at least three statute acres of flax.

N.B.—The limits of valuation in the foregoing classes are not prescribed; they are merely inserted as an indication to County Committees to encourage the small grower.

The County Committee may require growers entering flax for competition under this section to pay an entry fee.

When judging growing crops the judge shall take into consideration :—

- (a.) Freedom of crop from weeds ;
- (b.) Uniformity of crop ;
- (c.) Length and quality of crop.

GENERAL REGULATIONS.

1. A County Committee adopting this scheme should appoint a special sub-committee for flax, which must be restricted to six members, each of whom should be an experienced grower or scutcher of flax ; and this sub-committee should be given full authority to administer the county scheme when sanctioned in writing by the Department.

2. The sub-committee shall be responsible for organising shows under section A, and for making all arrangements in connection with sections A and B ; but no payments under this scheme shall be authorised, except by the County Committee.

3. The County Committee shall, by means of advertisements in the local papers and by posters, invite applications on special forms from persons in the county desirous of competing for the prizes offered under this scheme. Copies of these posters must be forwarded to the Department.

4. All prizes under this scheme, in connection with section A shall be paid in flax seed only, which will be procured by the Department and sold to the County Committee at cost price. In connection with section B, the prizes may be paid in money or seed at the discretion of the County Committee.

5. Not later than the 26th September, 1907, or not less than six weeks before the date of the first show, whichever is earlier, the County Committee must submit, for the approval of the Department, on the form provided for the purpose, a complete statement showing :—

In regard to section A—(1) the classes to be provided at each show ; (2) the quantity of flax to be exhibited by one person in each class, which should not be less than 16 stones ; (3) the number and value of the prizes to be offered ; (4) the place, suggested date, and hour of

each show (two or more alternative dates, being flax market days, should be suggested for each show); (5) the instructions to exhibitors, together with such conditions of award, in addition to the compulsory provisions in the following clauses as the Committee may consider desirable.

In regard to section B—(1) the number of districts into which it is proposed to divide the county; (2) the limits of valuation in each class; (3) the number and value of prizes in each class; (4) the amount of the entry fee, if any, to be charged.

6. All growers of flax shall be eligible to compete for prizes in sections A and B, subject to the regulations of this scheme.

7. Under neither section shall a grower be paid more than one prize during the season, and under Section A no individual can receive a prize both as a grower and as a mill-owner.

8. If, in the opinion of the judge, the flax exhibited under section A, or the crop inspected under section B, does not show sufficient merit, the prizes must be withheld.

9. If it be discovered that any fraud, deception, or dishonest practice has been committed, either in connection with the preparation or ownership of the scutched flax or gowing flax, or in any representation regarding exhibits of flax—scutched or growing—which may have affected, or have been intended to affect, the decision of the judge or judges, the offending person shall be disqualified, and shall be debarred from obtaining any future benefits under the Department's scheme. He shall also forfeit any claim in respect of prizes awarded under this scheme. The Department reserve to themselves the right to publish the names of such persons if deemed expedient.

10. No action shall be taken by any local authority towards putting any portion of this scheme into operation until the sanction of the Department to the Committee's proposals has been obtained in writing. The scheme, when sanctioned by the Department, must be considered as final for the year.

11. The County Committee shall, subject to the approval of the Department, appoint a competent judge or judges under this scheme. The person appointed under section A must not be a resident of the county in which he is to act.

The person appointed under section B may act as judge in the county in which he resides, but not in the district, as defined in this scheme, in which his residence is situated.

12. (1) Not later than six days after the holding of each show the Secretary of the County Committee shall submit to the Department for approval, on the form provided for the purpose, a statement showing the name and address of each of the prize-winners under section A, and the quantity of flax seed to which each winner is entitled. (2) Similar returns in respect of competitions in section B should be furnished to the Department within one week after the work of judging has terminated. (3) The awards will not be final until the sanction of the Department has been conveyed in writing to the Secretary.

13. The Secretary of the County Committee shall keep a separate account of expenditure in connection with each section of this scheme, and shall furnish same to the Department when required.

14. Subject to the foregoing regulations being complied with, the Department will be prepared to refund County Committees 50 per cent. of all authorised expenditure under this scheme.

15. The decision of the Department in all matters of dispute in connection with this scheme shall be final.

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SCHEME OF PRIZES FOR COTTAGES AND SMALL FARMS. 1908.

1. In 1908 County Committees of Agriculture may, subject to the Department's approval, offer prizes in one or both of the following sections, subject to the provisions of this scheme, viz. :—

- A. Cottages with gardens ;
- B. Small farms.

2. Competitions in Section A shall be confined to *bona fide* cottagers. Cottagers on whose holdings demonstration plots in connection with the scheme of Instruction in Horticulture are situated, shall, however, be ineligible to compete.

Only *bona fide* farmers who derive their means of living mainly from farming, who reside on their farms and work the farms themselves, will be eligible to compete in Section B. At least one-fourth of the arable land of the entire holding of each competitor in this section must be tillage, first year's grass or meadow being regarded as tillage.

3. For the purposes of this scheme the county may be divided into districts or circuits, in each of which separate competitions will be held.

4. Particulars as to the sections adopted, the number of districts or circuits into which the county is divided, the number of classes in each section, the limits of valuation or acreage fixed by the County Committee for each class, and the number and value of the prizes offered, must be submitted to the Department on the prescribed form for approval.

5. Entries must be made on special forms to be obtained from the Secretary of the County Committee. Each competitor must forward one of these forms, accurately filled up in every detail, so as to reach the Secretary of the County Committee on or before a date to be fixed by the County Committee, but in no case later than the 20th May, 1908.

No holding will be inspected in respect of which the owner fails to fill in an entry form.

6. In cases of insufficient competition, want of merit, or in which the conditions of this scheme have not been strictly adhered to, the prizes may be withheld in whole or in part.

7. The following points shall be taken into consideration by the judge in making his awards :—

COTTAGE SECTION.

- (a.) Cleanliness and general order of cottages and premises.
- (b.) Cultivation of the garden, including freedom from weeds, and well-kept fences and walks.
- (c.) Varieties of vegetables, fruits, and flowers.
- (d.) Arrangement of manure heap.
- (e.) General management and care of live stock, particularly pigs and poultry, special attention to be given to quality and housing.
- (f.) Management of bees.

SMALL FARM SECTION.

- (a.) Cleanliness, order, and economy in the dwelling-houses and offices (including poultry-houses).
- (b.) Judicious character of cropping, efficiency of cultivation, arrangement of manure heaps, and provision for collecting liquid manure.
- (c.) Cultivation of the garden, variety of vegetables and fruit trees.
- (d.) General condition of land under grass, care of fences, gates, watercourses, &c.
- (e.) Judicious planting of shelter belts.
- (f.) Freedom from weeds, especially grass land, stack-yards, and headlands.
- (g.) Cultivation of headlands.
- (h.) Management and care of live stock and poultry (quality to be particularly considered).
- (i.) Special credit will be given if simple accounts of receipt and expenditure in connection with any holding entered for competition are kept and exhibited to the judge.

8. The Department will supply, free of charge to the County Committee, the services of an Instructor to act as judge under this scheme.

9. The judge's report shall deal with such matters in connection with the competition as the Department and the County Committee may decide.

10. The inspection of cottages or small holdings entered for competition under this scheme will be made in the months of June, July, or August.

11. The Committee shall submit the judge's report, with list of awards, for consideration by the Department, who, as soon as they are satisfied as to the fulfilment of the conditions of this scheme, will notify the Secretary of the County Committee that the prizes or reduced prizes may be paid. The awards will not be final until the sanction of the Department has been conveyed in writing to the Secretary.

12. The County Committee shall furnish to the Department such detailed statements of expenditure under this scheme as may be required from time to time.

13. In all matters of dispute relating to this scheme the decision of the Department shall be final.

SCHEME OF INSTRUCTION IN AGRICULTURE, 1907-8.

1. The Department are prepared, provided a suitable Instructor in Agriculture can be obtained, to approve of the appointment of at least one such person for each county in Ireland. In the case of new appointments no person shall be eligible for an Instructorship in the county of which he is a native, or in which he resides permanently.

2. The Department will, as far as possible, assist the County Committee in obtaining an Instructor, by supplying the names of persons qualified for the post.

3. The remuneration of the Instructor shall not, except in special cases, exceed £200 per annum, inclusive of maintenance and hotel expenses, in addition to expenses of locomotion, which include second or third class railway fare as decided by the County Committee, car hire when necessary, or a bicycle allowance not exceeding 2*d.* per mile in lieu thereof.

4. The employment of the Instructor under this scheme shall not continue beyond the 30th September, 1908, and shall be terminable at any time previous to that date by the giving of three months' notice in writing on either side.

5. It will be the duty of the Instructor, who should take every opportunity of discussing with farmers matters affecting their interests, to deliver courses of lectures on agricultural subjects, such as soils, manures, seeds, pastures, crops and their cultivation, breeding, feeding, and management of live stock—to conduct such experiments and demonstrations in spring and summer as may be approved by the Department—to select suitable land for this purpose—to supervise the sowing of the seeds and manures and the keeping of the plots free from weeds—to weigh the produce, tabulate the figures, and prepare a report on the results—to assist, if required, in the teaching at Agricultural Classes established with the approval of the Department—to visit farms—to reply to letters from farmers seeking information—to advise farmers how they may avail themselves of the Department's live stock schemes and of the Department's seed-testing station—to make known the provisions of the Fertilizers and Feeding Stuffs Act—to advise farmers concerning the planting of forest trees for shelter and ornament—to advise farmers how they can best avail themselves of all schemes which may be adopted by the County Committee and by the Department, and how they may take advantage of agricultural organisation—to report to the Department and to the County Committee regarding the progress of his work, either weekly or otherwise, as may be required; and generally to give his whole time to the work and do all in his power to further the interests of agriculture in the county.

The Instructor may also be required (*a*) to assist in carrying out the provisions of the Dairy Cattle Registration scheme by the weighing and testing of milk, &c.; and (*b*) to act as judge in connection with the scheme of prizes for cottages and small farms in a county other than that in which he acts as Instructor,

6. For the purposes of this scheme the county should be divided into circuits, each comprising not less than five centres. The Instructor, unless in exceptional cases, should work for three or four weeks in each circuit, and deliver one lecture per week at each centre during that time. The Instructor will, when invited to do so, visit either on the day of the lecture or on the following day, any of the farms in the neighbourhood, and give such information on practical subjects as the circumstances of the case may suggest.

The County Committee are alone responsible for the selection of centres and arrangement of lectures. No work of this nature should be undertaken by the Instructor, though it is desirable that he should be consulted.

In selecting centres the County Committee should have particular regard to districts in which lectures may not have been given in previous years.

7. It will be the duty of the County Committee to select centres at which the lectures will be given, and to appoint a local committee with an honorary secretary at each centre who should select the school or other building and arrange for the hiring, lighting, and warming of the room in which the lectures will be delivered.

It will also be the duty of the County Committee to undertake the responsibility of seeing that the Instructor's time is fully and usefully employed.

The County Committee shall keep a separate account of all expenditure under this scheme and shall furnish detailed statements of such expenditure as may from time to time be required by the Department.

8. Lectures should be arranged to be given in school-rooms or other suitable public rooms in the evenings, and should be held in rural centres. Towns and the larger villages should be avoided, as experience has shown that the greatest success attends those lectures which are given in the rural parts of a county, especially when the lectures are delivered in a district where the greatest number of farmers is to be found. The local committee at each centre should be responsible for appointing a representative chairman for each lecture as well as for the distribution of the short syllabus of the lectures which will be prepared by the lecturer at the beginning of the season or as soon thereafter as he is appointed. The local committee should undertake to have posters and handbills, which will be supplied by the Secretary of the County Committee, effectively displayed and distributed throughout their district. A copy of each poster and handbill should be forwarded to the offices of the Department one week prior to the commencement of the lectures in each circuit. Each lecture should be followed by a discussion, during which farmers will be invited to ask questions relative to their business.

9. It will be the duty of the Secretary of the County Committee to keep an inventory of and be responsible for the safe keeping of all equipment provided for the purposes of this scheme.

10. The lectures should commence if possible in October, but in any case not later than November, and be continued until the end of February.

The employment of the Instructor to teach winter agricultural classes will not relieve him of his other duties under this scheme, and accordingly when he is occupied in teaching for four days in a week the Instructor should deliver at least one lecture in the same week on a day when not engaged in teaching, as well as attend as far as practicable to the other branches of work mentioned in clause 5. If occupied less than four days a week in teaching such classes the number of lectures should be correspondingly increased.

11. No action shall be taken by the County Committee towards putting this scheme, or any part thereof, into operation until the sanction of the Department has been obtained in writing.

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SCHEME OF WINTER AGRICULTURAL CLASSES, 1907-8.

1. The Department are prepared to approve of the organization by County Committees of Agriculture of classes in agricultural subjects during the winter 1907-8.

2. Owing to the small number of qualified teachers available, classes can be established in a limited number of counties only.

Preference will be given to counties in which an Itinerant Agricultural Instructor has previously worked.

It will be necessary, in order to bring the classes within the reach of as many young men as possible, that in each county the teacher shall give instruction at two or three centres, at each of which he shall attend for *three* or *two* days weekly during a period of about twenty weeks from October to March.

Unless in very exceptional circumstances, centres at which agricultural classes have been held previously should not be selected under this scheme.

3. The classes will be confined to young men over sixteen years of age who are actually engaged in farm work in the county, and not more than twenty-four students may be admitted at any centre. If the number of students eligible for admission at a centre is less than ten, the class proposed for that centre will not be held.

The County Committee may make such regulations as they think necessary with regard to—

- (1) the maximum age of students seeking admission to the classes ;
and
- (2) the admission to the classes of students who have previously attended similar classes.

4. The classes will be held in the morning and afternoon, and the hours of attendance will be arranged to suit as far as possible the convenience of students who travel by rail. Instruction will be given for five hours each day.

5. As teacher for the classes the County Committee may employ (1) for four days per week the Itinerant Instructor in Agriculture who has previously worked in the county if approved of by the Department, or (2) an approved teacher who would devote his whole time to the classes. In the event of the Itinerant Instructor in Agriculture being employed as teacher he shall devote the remaining two days of the week to duties in connection with the scheme of Itinerant Instruction in Agriculture.

6. The aim of the instruction is to impart such knowledge as is capable of direct practical application to farm work. The subjects taught will be as follows:—Soils, tillages, manures (natural and artificial), seeds, grasses, weeds, treatment of pasture cropping, management of live stock (including winter dairying), valuation of manures and feeding stuffs, simple farm account keeping, mensuration, elementary chain surveying, and elementary science explanatory of the principles underlying ordinary farm practice.

The County Committee may arrange for demonstrations in the planting and after treatment of fruit trees to be given to the students by the County Instructor in Horticulture. The Department will, if possible, provide the services of a teacher of Veterinary Hygiene.

7. No fee will be charged for the course. Students must provide themselves with note-books and other stationery as may be required by the Teacher.

8. Applications for admission to the classes must be made to the Secretary to the County Committee on forms provided by him for the purpose.

9. Admission to the classes will be conditional on the applicants satisfying the Department that their general education is sufficient to enable them to benefit by the instruction given. For this purpose an entrance examination in Simple Arithmetic and English Composition will be conducted by the Department. The cost of attending this examination must be borne by the applicants.

10. Students who reside beyond the radius of three statute miles from the class centre will, at the end of the course, be allowed the cost of third-class railway tickets or one penny for each mile travelled by road, provided that their attendance and progress are regarded by the Department as satisfactory.

11. As attendance at the classes will necessitate a somewhat prolonged absence from home on the part of the students, arrangements may be made at the discretion of the County Committee to provide them with a mid-day meal free of cost.

12. It is recommended that a County Committee adopting this scheme should appoint, from amongst their own members, a special sub-committee of not more than six members, and that this sub-committee should be given authority to administer the county scheme for agricultural classes when sanctioned in writing by the Department.

Payments under this scheme, however, can be authorised only by the County Committee.

13. The sub-committee should be responsible for organising the classes and making all arrangements in connection therewith. In fixing the days of the week on which the classes are to be held at any centre regard should be had to the dates of fairs and markets as well as to any local circumstance which might interfere with the attendance of pupils on certain days.

14. The county committee shall, by means of advertisements in the local newspapers and by posters and leaflets, invite application for admission to the classes. Copies of these posters and leaflets must be forwarded to the Department as soon as issued.

15. The Secretary of the County Committee shall, at the earliest possible date after the opening of the classes, furnish to the Department, on the prescribed form, a return of the pupils in attendance, showing for each pupil the mode of travelling to the class and the daily mileage.

16. The Secretary of the County Committee shall obtain the Department's approval in writing for all expenditure in connection with this scheme, and shall keep a separate account of all such expenditure. He shall also keep an inventory of, and be responsible for the safe keeping of all equipment provided for the purposes of this scheme.

17. Immediately after the close of the course the Secretary of the County Committee shall take charge of the equipment provided for the classes, and furnish a list of the same to the Department. He shall also submit to the Department a return of the attendance of the students and of the travelling allowances payable to them under this scheme.

18. In all matters of dispute relating to this scheme the decision of the Department shall be final.

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07.

SCHEME FOR ENCOURAGING IMPROVEMENT IN THE POULTRY-KEEPING INDUSTRY, 1907-8.

1. The Department are prepared, provided a suitable Instructor in Poultry-Keeping can be obtained, to approve of the appointment of at least one such person for each county in Ireland. In the case of new appointments no person shall be eligible for the position of Instructor in the county of which he or she is a native or in which he or she resides permanently.

2. The Department will, as far as possible, assist County Committees in obtaining an Instructor by supplying the names of persons qualified for the post.

3. Unless in exceptional circumstances the remuneration of the Instructor shall not exceed £2 per week, in addition to expenses of locomotion, which include second or third class railway fare, as decided by the County Committee, car hire when necessary, or a bicycle allowance not exceeding 2d. per mile in lieu thereof.

4. The employment of the Instructor under this scheme shall not continue beyond the 30th September, 1908, and is terminable at any

time previous to that date by the giving of four weeks' notice in writing on either side.

5. It will be the duty of the Instructor to deliver courses of lectures and hold classes on poultry-keeping, including the selection of breeds, the hatching and rearing of chickens, the feeding and housing of poultry, and the marketing of the produce; to give practical instruction and demonstrations on the treatment of common diseases such as gapes, &c., on the fattening of fowls, and on the killing, plucking, trussing, and preparation of poultry for market, as well as on the grading and packing of eggs; to visit poultry runs, and give such practical advice as may be desired by poultry-keepers; to inspect the egg distribution and turkey stations referred to in clauses 11, 14, and 15; to report to the Department and to the County Committee regarding the progress of his or her work either weekly or otherwise as may be required; and generally to give his or her whole time towards promoting improvement in poultry-keeping in the county.

6. For this purpose the county should be divided into circuits, each comprising not less than five centres. The Instructor, except in special cases, should work for at least four weeks in each circuit, and deliver one lecture per week at each centre during that time. The Instructor will, when invited to do so, visit either on the day of the lecture or on the following day, any of the poultry runs in the neighbourhood, and give such information on poultry-keeping as the circumstances of the case may suggest.

The County Committee are alone responsible for the selection of centres and the arrangement of lectures and classes. No work of this nature should be undertaken by the Instructor, though it is desirable that he or she should be consulted.

7. It will be the duty of the County Committee to select centres at which the lectures and classes will be held and to appoint a local committee, with an honorary secretary, at each centre, who should select the school and arrange for the hiring, lighting, and warming of the room in which the lectures will be delivered.

In selecting centres the County Committee should have particular regard to districts in which lectures may not have been given in previous years.

It will also be the duty of the County Committee to undertake the responsibility of seeing that the Instructor's time is fully and usefully employed.

The County Committee shall keep a separate account of all expenditure under this scheme, and shall furnish detailed statements of such expenditure as may from time to time be required by the Department.

8. Lectures and classes should be arranged, wherever possible, to be given in schoolrooms or other suitable public rooms in the evenings, and should be held in rural centres only. Towns and the larger villages should be avoided, as experience has shown that the greatest success attends those lectures which are given in the rural parts of a county, especially when the lectures are delivered in districts where the greatest number of those interested in poultry-keeping is to be found. The

local committee at each centre should be responsible for appointing a representative chairman for each lecture, as well as for the distribution of the short syllabus which will be prepared by the lecturer as soon as appointed. The local committee should undertake to have posters and handbills, which will be supplied by the Secretary of the County Committee, effectively displayed and distributed throughout the circuit. Copies of these posters and handbills should be forwarded to the Department at least a week prior to the commencement of each course of lectures. Each lecture should be followed by a discussion, during which farmers and others interested in poultry-keeping will be invited to ask questions relative to their business. Where a course of lectures has already been given a new syllabus should be presented.

9. The lectures should commence early in autumn and be continued until the end of the hatching season. If employed during the summer months, the Instructor should, during that season, visit poultry runs, inspect egg distribution stations, and give practical instruction and demonstrations in fattening, trussing, &c.

10. The Instructor will be required to make at least three complete inspections of all hen and duck stations, and two inspections of goose and turkey stations in the county between the 1st October and 31st May. These inspections will be in addition to the preliminary inspection of applicants' premises. After each inspection the Instructor shall submit reports to the County Committee and to the Department on the forms provided for the purpose.

DISTRIBUTION OF SETTINGS OF EGGS OF PURE BREEDS.

Hens and Ducks.

11. In counties where instruction in poultry-keeping has been provided the Department are prepared to sanction a limited number of premiums of £5 each being awarded to approved applicants, selected by the County Committee, who distribute during the season at least 70 settings of eggs; those who distribute less will be paid in proportion to the number distributed. No maximum number of settings to be distributed is prescribed, but owners of stations must continue selling eggs at the fixed price until May 31st. The owner may set eggs for his own use, but such settings will not count towards a premium. Applicants must agree to comply with the following conditions:—

(1.) To keep one pure breed of hens only. In exceptional cases the Department may approve of more than one pure breed being kept, provided they are satisfied that the selected person, houses, runs, birds, &c., are suitable. Only one breed of ducks can be kept.

(2.) To sell or destroy any existing fowl on the farm of which the Instructor or the Department may disapprove, and not to bring on the farm during the period for the distribution of eggs fowl of any description without the sanction of the Instructor and of the Department.

(3.) To keep no male birds on the farm other than those sanctioned for stock purposes of the approved breed or breeds.

(4.) To dispose of the male birds in use during 1906-7 and to replace these with others unrelated to the stock at the station.

(5.) When a premium is claimed for hens alone, to keep not less than thirty or more than sixty of the selected breed. If the premium is claimed in respect of hens and ducks, not less than five ducks and twenty-five hens must be kept, or ten ducks and twenty hens, but the total number of birds to be kept at any one station should not exceed sixty. At least one cock or cockerel must be kept for every ten hens or pullets, and one drake for every five or six ducks.

(6.) To replace each year at least one-third of the hens with early hatched pullets.

(7.) To provide proper housing where such does not already exist, and in the case of two breeds being kept to provide a separate run for each to the satisfaction of the Instructor and the Department. The size of run for any flock of birds will require to be at least twenty square yards per bird.

(8.) To feed and care the birds in such a manner as the Instructor and the Department may require.

(9.) To supply, during the season specified in par. (11.) below, settings of eggs from the selected birds to any person in the county at 1s. per dozen (the purchaser to bear the cost of package and carriage), and to replace infertile eggs that are returned within one month from the date on which they were sent out.

In special cases the Department may sanction an increase in the price of eggs, provided the County Committee show sufficient reason for so doing.

(10.) To stamp all eggs given out with a stamp provided for the purpose by the County Committee.

(11.) To keep in a special book provided by the County Committee an accurate record of all eggs laid and distributed. This book must be sent to the Secretary of the County Committee or to the Department when asked for by either of these bodies. The books must be returned to the Secretary of the County Committee at the end of the distributing season, which will commence on the 1st December, 1907, and terminate on the 31st May, 1908. (See Clause 19.)

(12.) To permit the Instructor and the Department to inspect the birds at any time.

Any infringement of the above rules may entail the cancellation of the premium.

12. The following breeds of hens and ducks will alone be recognised :—

HENS.

Laying Breeds.

Black Minorcas. White Leghorns. Brown Leghorns.

General Purpose Breeds.

Plymouth Rocks (Barred variety recommended). Orpingtons (Buff and White recommended). White Wyandottes. Salmon Faverolles. Sussex. Houdans.

DUCKS.

Indian Runner. Aylesbury. Pekin.

13. An additional grant of 50 per cent. of the actual cost, but in no case exceeding £2, may be made to selected persons who provide themselves for the purpose of this scheme with portable wooden fowl-houses approved by the Department. This will apply only to persons who are taking up the scheme in 1907-8 for the first time. No grant will be made in respect of improvements in an existing house, and if a new house is obtainable it must be portable.

GEESE.

14. A limited number of premiums of £2 each may be offered to persons selected by the County Committee, and approved by the Department, who will undertake to comply with the following conditions :—

- (1.) To keep a gander and three geese of the Embden breed.
- (2.) To sell or dispose of any existing geese on the farm, of which the Instructor or the Department may disapprove, and not to bring on the farm during the period for the distribution of eggs geese of any description without the sanction of the Instructor and of the Department.
- (3.) To sell *not less than 12 settings of eggs* to residents in the county; those who distribute less will be paid in proportion to the number distributed. No maximum number of settings to be distributed is prescribed, but owners of stations must continue selling eggs at the fixed price until 31st May, 1908.
- (4.) The eggs to be sold at 1s. 6d. per setting—three eggs to count as a setting—(purchaser to defray the cost of package and carriage where necessary). Each applicant to be restricted to one setting.
- (5.) To provide proper housing where such does not already exist. The birds to have access to suitable shelter at all times, and to be hand-fed, when a sufficient amount of natural food is not obtainable, in such a way as the Instructor and the Department may require.

Preference should be given to those applicants who possess land well supplied with water.

- (6.) Only one pen of geese to be kept unless where selected persons possess two or more separate farms, in which case a second pen may be allowed.

(7.) To stamp all eggs given out with a stamp provided for the purpose by the County Committee.

(8.) To keep in a special book provided by the County Committee an accurate record of all eggs laid and distributed. This book must be sent to the Secretary of the County Committee or to the Department when asked for by either of these bodies. The books must be returned to the Secretary of the County Committee at the end of the distributing season, which will commence on 1st January and terminate on 31st May, 1908.

(9.) To permit the Instructor and the Department to inspect the birds at any time.

Any infringement of the above rules may entail the cancellation of the premium.

TURKEYS.

15. A limited number of premiums of £2 each may be offered to persons selected by the County Committee and approved by the Department who will undertake to comply with the following conditions:—

(1.) To keep one pure-bred American Bronze stock turkey cock for the service of turkey hens, the property of residents in the county. Twenty hens other than those belonging to the station holder must be served, at a fee of 6d. per service, by an approved turkey cock. If a smaller number are served, the premium will be proportionately reduced. After twenty hens have been served the owner may refuse to allow the bird to serve more, or may charge a higher fee. The stock birds must not be less than the following weight on 1st January, 1908, viz.:—Cockerels, 22 lbs.; adult birds, 28 lbs. Birds more than three years old are not eligible for premiums.

(2.) To provide proper housing accommodation, and to feed and care the bird in such a manner as the Instructor and the Department may require.

(3.) To keep no turkey cock other than the bird approved for the purpose of this scheme.

(4.) To keep in a special book, provided by the County Committee, an accurate record of services. This book must be sent to the Secretary of the County Committee or to the Department when required, and in any case must be returned to the Secretary of the County Committee not later than the 7th June, 1908.

(5.) To permit the Instructor or the Department to inspect the birds at any time.

Any infringement of the above rules may entail the cancellation of the premium.

A station-holder under the 1906-7 scheme will not be eligible to hold a premium under the 1907-8 scheme unless the bird kept in 1906-7 is exchanged or an approved new one purchased.

A premium may be granted for a turkey cock selected in 1906-7, provided the bird is suitable in every respect, and is located at a different station either in the same or another county.

16. An applicant will be eligible for only one premium either for hens or for hens and ducks combined, but he will, in addition be eligible to hold a premium for geese and a premium for turkeys. No premium, however, will be given for ducks alone.

17. As soon as the Instructor has been appointed and the number of premiums proposed to be awarded has been approved of by the Department, the County Committee shall invite applications from persons in the county who already possess or are willing to purchase, pens of the approved pure breeds of hens and ducks, or geese, as the case may be, or to keep one pure-bred turkey-cock, and who are prepared to comply with the above conditions. When these applications have been received the Instructor will, as soon as possible, inspect and report to the County Committee as to the number of suitable applicants. The names of the applicants selected by the County Committee, with full particulars as to the breeds, number of birds, and housing, should then be submitted, on the prescribed form, for the approval of the Department,

who may thereupon further inspect the selected farms, and submit a list of those of which they approve to the County Committee for their final selection.

18. The Department will not consider applications from a county in respect of premiums under this scheme later than 1st December, 1907.

County Committees who intend to adopt this scheme should have all arrangements completed prior to the 1st January, 1908.

19. (1.) Not later than 7th June, 1908, the selected applicants for premiums must forward to the Secretary of the County Committee the record books referred to in Clauses 11 (11), 14 (8), and 15 (4), accompanied by a certificate that the entries in these books are correct, and that all the conditions of this scheme have been complied with.

(2.) As soon as the Department are satisfied as to the fulfilment of the conditions of this scheme, the Secretary of the County Committee will be notified that payment may be made by the Committee of the premiums or portions thereof payable under this scheme.

(3.) Any premium not applied for by the 7th June, 1908, shall be considered as having lapsed.

20. No action shall be taken by the County Committee towards putting this scheme, or any part thereof, into operation until the sanction of the Department has been obtained in writing.

21. In all matters of dispute relating to this scheme the decision of the Department shall be final.

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07.

INSTRUCTION IN BUTTER-MAKING, 1907-8.

1. The Department are prepared, provided qualified Instructors can be obtained, to approve of the appointment of an Instructor in Butter-making in each county. In the case of new appointments no person shall be eligible for the position of Instructor in the county of which she is a native or in which she permanently resides.

2. The Department will, as far as possible, assist the County Committee in obtaining an Instructor, by supplying the names of persons qualified for the post.

3. The remuneration of the Instructor shall not exceed £2 per week, in addition to expenses of locomotion, which include second or third class railway fare as decided by the County Committee, car-hire when necessary, or a bicycle allowance not exceeding 2d. per mile in lieu thereof.

4. The employment of the Instructor under this scheme shall not continue beyond the 30th September, 1908, and is terminable at any time previous to that date by the giving of four weeks' notice in writing on either side.

5. The instruction will take the form of daily lessons on dairying, accompanied by practical instruction in butter-making. Each course shall extend for a period of not less than two and not more than four weeks. Not more than twelve pupils should be admitted to each class. Pupils must undertake to attend regularly.

6. On the first day of visiting each centre the Instructor should give a public lecture and demonstration, and during the remainder of the course at that centre should conduct a class daily in which pupils only will take part, but which shall be open to the public.

It will also be the duty of the Instructor to visit home dairies in the county and to give advice as required ; to give, where possible during that part of the day not required for class work, demonstrations in the making of butter, by means of the equipment actually in use in the dairies visited ; to reply to letters from persons seeking advice on butter-making ; to report to the Department and to the County Committee on the progress of her work either weekly or otherwise as may be required ; and generally to give her whole time to the work of the Committee.

7. It will be the duty of the County Committee to select suitable centres at which classes will be held, and to appoint at each centre a local committee, with an honorary secretary, who will be responsible for the local arrangements necessary for the proper carrying out of the work, and who will be required to comply with the annexed conditions. The local committee should undertake to have posters and hand-bills, which will be supplied by the Secretary of the County Committee, effectively displayed in the neighbourhood of the centre. Copies of these posters and hand-bills should be forwarded to the Department at least a week prior to the commencement of each class.

It will also be the duty of the County Committee to undertake the responsibility of seeing that the Instructor's time is fully and usefully employed.

The County Committee shall keep a separate account of all expenditure under this scheme, and shall furnish detailed statements of such expenditure as may from time to time be required by the Department.

It will be the duty of the Secretary to keep an inventory of and be responsible for the safe keeping of all equipment provided for the purposes of this scheme.

8. To avoid expense and to ensure success these classes should be held, as far as possible, in schoolrooms or other suitable buildings in rural centres. Unless in exceptional circumstances no class should be held in a large village or town, or near a creamery.

The County Committee are alone responsible for the selection of centres and arrangement of lectures. No work of this nature should be undertaken by the Instructor, though it is desirable that she should be consulted.

9. No action shall be taken by the County Committee towards putting this scheme into operation until the sanction of the Department has been obtained in writing.

CONDITIONS REQUIRED OF LOCAL COMMITTEES.

I. To secure premises suitable for a working dairy, if possible not less than 25 feet by 18 feet, or other dimensions affording similar floor space. Either a public room, schoolroom, or barn with good floor would be suitable for the purpose.

II. To secure a sufficient supply of water.

III. To provide on the premises means of heating at least fifteen gallons of water at one time, for use in cleaning utensils, &c.

IV. To provide sufficient milk or cream for use in the school, the Committee taking responsibility of sale of butter.

After the opening day at each centre about three gallons of milk and six gallons of cream will be required for each day's work. Arrangements should be made to have the milk and the cream delivered in the morning.

V. To guarantee not less than six and not more than twelve pupils to attend on each of the days over which the course of instruction extends.

VI. To arrange for the carriage of utensils from one centre to another. The weight of the utensils is usually from 25 to 30 cwts, and they are somewhat bulky.

The Department recommend the following list of utensils for a travelling dairy school attended by twelve pupils:—

	Approximate Cost.		
	£	s.	d.
6 End-over-end Churns, at £3,	18	0	0
6 Butter Workers, at 37s. 6d.,	11	5	0
6 Butter Boards, at 2s.	0	12	0
4 Large Butter Boards, at 3s. 6d.,	0	14	0
6 Scoops, at 1s.,	0	6	0
6 Sieves, at 2s. 6d.,	0	15	0
6 Pairs Scotch Hands, at 2s. 6d.,	0	15	0
6 Squeegees, at 1s.,	0	6	0
6 Scrubbing Brushes, at 1s.,	0	6	0
6 Thermometers, at 1s. 6d.,	0	9	0
6 White Enamelled Buckets, at 5s. 6d.,	1	13	0
6 Iron Buckets, at 4s. 6d.,	1	7	0
4 Shallow Tins (Cream), at 4s.,	0	16	0
1 Pair Scales,	0	19	0
1 Set Iron Weights (7, 4, 2, 1, $\frac{1}{2}$ & $\frac{1}{4}$ lb.),	0	4	6
1 Set Brass Weights, (2, 1, $\frac{1}{2}$ & $\frac{1}{4}$ oz.),	0	5	6
1 Set Creamometers,	0	6	6
1 Lactometer,	0	1	6
1 Gerber Butter-fat Tester (2 Bottles), about	2	10	0
1 2-Quart Measure,	0	2	6
4 Quart Measures, at 1s. 9d.,	0	7	0
4 Pint Measures, at 1s. 3d.,	0	5	0
2 Skimmers, at 8d.,	0	1	4
1 Hand Separator (17 gallons per hour),	7	10	0
1 Portable Boiler (15 gallons),	2	14	0

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The above equipment allows one churn, one butter worker, and one set of the smaller utensils for two students. A dash churn may be included in the equipment when the County Committee deem it desirable

Special attention is directed to Clause 10.

SCHEME OF INSTRUCTION IN HORTICULTURE AND THE MANAGEMENT OF BEES, 1907-8.

1. The Department are prepared, provided a suitable Instructor in Horticulture and Bee-keeping can be obtained, to approve of the appointment of at least one such person for each County in Ireland. In the case of new appointments no person shall be eligible for the position of Instructor in the county of which he is a native, or in which he permanently resides.

2. The Department will, as far as possible, assist the County Committee in obtaining an Instructor, by supplying the names of persons qualified for the post. If a County Committee should find it impossible to obtain a person competent to give instruction in both branches the Department may sanction the employment of separate Instructors for each subject.

3. The remuneration of the Instructor shall not, unless in exceptional circumstances, exceed £2 per week, in addition to expenses of locomotion, which include second or third-class railway fare, as decided by the County Committee, car hire when necessary, or a bicycle allowance not exceeding 2*d.* per mile in lieu thereof.

4. The employment of the Instructor under this scheme shall not continue beyond the 30th of September, 1908, and is terminable at any time previous to that date by the giving of four weeks' notice in writing on either side.

5. It will be the duty of the Instructor to give demonstrations, and if approved, to deliver lectures on horticultural subjects, such as soils, manures, vegetable, fruit, and flower cultivation, plant diseases, and insect pests—to visit gardens and orchards, and give practical demonstrations on spraying, planting, pruning and grafting of fruit trees—to conduct such experiments and other demonstrations in the spring and summer as may be approved by the Department—to select suitable land for this purpose—to supervise the sowing of the seeds and manures, and the keeping of the plots free from weeds—to weigh the produce, tabulate the figures, and prepare a report on the results—to give instruction in the principles and practice of modern bee-keeping—to deal with diseases of bees, plants, and trees—to advise farmers, cottagers, and others interested in land, as to the planting of trees, &c., for shelter and ornament—to reply to letters from those seeking his advice on horticultural and bee-keeping subjects—to report to the Department and to the County Committee on the progress of his work either weekly or otherwise, as may be required; and generally to give his whole time to the work and to do all in his power to further the interests of horticulture and bee-keeping in the county.

6. The Instructor shall report to the County Committee on all cases of foul brood which may come under his notice. He may, subject to the consent of the owner of the bees being previously obtained by him,

destroy infected stocks by burning them, and shall take all due precautions against the spread of the disease. He must advise in writing the County Committee of each case in which stocks are so destroyed, and the County Committee may, if they think fit, pay to the owners of such stocks a sum not exceeding 5s. for each stock destroyed, provided that the amount set aside in the County Scheme for compensation under this clause shall not be exceeded.

It will also be his duty to report to the County Committee the names and addresses of persons in the possession of gooseberry bushes on which he has detected, or has reasonable grounds for suspecting the existence of, American gooseberry mildew.

7. For the purposes of this scheme the county should be divided into circuits. The Instructor should work for three or four weeks in each circuit, and give lectures and demonstrations during that time. In cases, however, where an Instructor may be employed to give instruction in bee-keeping only it will not be necessary to divide the county into circuits. In such instances demonstrations can be arranged for at centres from which applications have been made through the Secretary of the County Committee for his services. The Instructor will visit gardens, orchards or apiaries in the district, and give such information on practical subjects as the circumstances of the case may suggest.

The County Committee are alone responsible for the selection of centres for lectures and demonstrations. No work of this nature should be undertaken by the Instructor, though it is desirable that he should be consulted.

8. It will be the duty of the County Committee to select centres at which the lectures and demonstrations will be given, and to appoint at each centre a local committee, with an honorary secretary, who should select the school and arrange for the hiring, lighting, and warming of the room in which the lectures will be delivered.

In selecting centres the County Committee should have particular regard to districts in which lectures and demonstrations may not have been given in previous years.

It will also be the duty of the County Committee to undertake the responsibility of seeing that the Instructor's time is fully and usefully employed.

The County Committee shall keep a separate account of all expenditure under this scheme, and shall furnish detailed statements of such expenditure as may from time to time be required by the Department.

9. Where it is considered desirable to arrange for lectures, the lectures should be given in schoolrooms or other suitable public rooms in the evenings, and should be held in rural centres. Towns and the larger villages should be avoided, as experience has shown that the greatest success attends those lectures which are given in the rural parts of a county. The local committee at each centre should be responsible for appointing a representative chairman for each lecture as well as for the distribution of the short syllabus of the lectures which will be prepared by the lecturer as soon as he is appointed. The local

committee should undertake to have posters and handbills, which will be supplied by the Secretary of the County Committee, effectively displayed and distributed throughout their district. Copies of these posters and handbills should be forwarded to the Department at least a week prior to the commencement of each course of lectures. Each lecture should be followed by a discussion, during which persons interested in horticulture and bee-keeping will be invited to ask questions. Where a course of lectures has already been given a new syllabus should be presented.

10. The County Committee may purchase fruit, forest, and other trees, shrubs, or plants, in bulk, and re-sell them at cost price, including carriage, to farmers, cottagers, and other residents in the county. As, however, it has come to the knowledge of the Department that trees and plants infested with disease have been imported into Ireland, it will be necessary for County Committees who intend to put this clause into operation to invite from nurserymen tenders for the supply of trees, &c., to be guaranteed free from disease, and before acceptance to submit the tenders to the Department for examination. The Department may, if they think it advisable, inspect the trees, &c., that are offered for sale, and satisfy themselves that they are suitable and free from disease.

11. The horticultural demonstrations should commence early in autumn and be continued throughout the whole year.

12. In each circuit one demonstration plot may be provisionally selected for the purpose of growing fruit, vegetables, and flowers, and showing improved methods of cultivation, but no new plots shall be selected in a county if a sufficient number of suitable plots have been established in previous years.

Before sanctioning the establishment of a new plot the Department will inspect the site with a view to determining the suitability of the land, &c.

(a) In counties in which a sufficient number of suitable plots already exist the Committee shall make provision for the continuance of the plots at a cost not to exceed £1 5s. per plot. (See List A.)

All requisite labour must be given gratuitously by the owner of the plot, who will be entitled to the produce.

(b) In cases where it is necessary to establish new plots the Department will require compliance with the following regulations:—

(1) Plots must not exceed a quarter of an acre in extent, or be less than one-eighth of an acre (quarter-acre plots are recommended).

(2) No new plot shall be established save at a convenient centre adjacent to a main road.

(3) Plots should be selected on sites which are properly fenced. Should, however, any fencing be necessary, the materials (*i.e.*, a sufficient quantity of wire with wooden posts) may be supplied by the Committee, provided funds have been allocated for the purpose in the County Scheme; the fencing to be put up by the owner of the plot at his own expense. In no case will the Department approve of expensive fencing and gates being supplied by the County Committee to a plot owner.

(4) The aspect of each plot and the nature of the soil must be suitable for fruit and vegetable growing. Necessary improvements,

such as drainage, must be carried out, and when required farm-yard manure must be supplied by the plot-owner without expense to the Committee.

(5) The owner of the plot must sign an undertaking to continue the plot for three years.

(6.) The necessary labour must be given gratuitously by the persons providing the plots—the produce to be their property.

The cost of trees, &c., required for planting a new plot must not exceed £3. (See List B).

13. The Department's approval in writing must be obtained before any expense is incurred in connection with the establishment of a plot, and application for such approval must be accompanied in each case by a detailed report from the Instructor.

14. No action shall be taken by the County Committee towards putting this scheme, or any part thereof, into operation, until the sanction of the Department has been obtained in writing.

15. In all matters of dispute relating to this scheme the decision of the Department shall be final.

APPENDIX.

LIST A.

LIST OF VEGETABLES, &c., recommended for a Horticultural Demonstration Plot (not exceeding one-fourth acre) already established.

ESTIMATED COST ABOUT £1 5s. 0d.

<i>Vegetables.</i>				Quantity.
Description.				
Beans, Broad,	.	.	.	1 qt.
„ French,	.	.	.	$\frac{1}{2}$ pt.
„ Runner,	.	.	.	$\frac{1}{2}$ pt.
Brussels Sprouts,	.	.	.	$\frac{1}{2}$ oz.
Broccoli,	.	.	.	$\frac{1}{2}$ oz.
Cabbage, Early,	.	.	.	3 oz.
„ Savoy,	.	.	.	$\frac{1}{2}$ oz.
Cauliflower,	.	.	.	$\frac{1}{2}$ oz.
Carrot,	.	.	.	$\frac{1}{2}$ oz.
Celery,	.	.	.	100 plants.
Kale Curly,	.	.	.	$\frac{1}{2}$ oz.
Leek,	.	.	.	1 oz.
Lettuce,	.	.	.	1 oz.
Onion,	.	.	.	3 oz.
„ Potato,	.	.	.	1 st.
Parsnip,	.	.	.	2 oz.
Parsley,	.	.	.	1 oz.
Peas,	.	.	.	3 qts.
Potatoes, Early (to be boxed),	.	.	.	4 st.
„ Late („ „),	.	.	.	4 st.
Turnips,	.	.	.	2 oz.
Vegetable Marrow,	.	.	.	1 packet.

LIST A—*continued.**Flowers.*

Candituft,	.	.	.	.	1 packet each.
Canterbury Bells,	.	.	.	.	1 "
Larkspur,	.	.	.	.	1 "
Lupin,	.	.	.	.	1 "
Mignonette,	.	.	.	.	1 "
Nasturtium,	.	.	.	.	1 "
Sunflower,	.	.	.	.	1 "
Wallflower,	.	.	.	.	1 "
Sweet Pea,	.	.	.	.	1 pt

Artificial Manures.

Muriate of Potash,	.	.	.	.	3 stone.
Nitrate of Soda,	.	.	.	.	3 "
Superphosphate,	.	.	.	.	4 "

LIST B.

LIST of FRUIT TREES, PLANTS, and SEEDS, &c., recommended for a new Horticultural Demonstration Plot of one-fourth acre in extent.

ESTIMATED COST ABOUT £3.

Fruit.

Description.	Quantity.
Apples, Bush on Paradise Stock,	3 trees.
Pears, Bush on Quince Stock,	2 trees.
Plums, Bush,	2 trees.
Currants, Red,	3 bushes.
" White,	3 "
" Black,	6 "
Gooseberries,	12 "
Raspberries,	24 canes.
Strawberries,	100 plants.

Vegetables.

Beans, Broad,	1 qt.
Beans, French,	$\frac{1}{2}$ pt.
Beans, Runner,	$\frac{1}{2}$ pt.
Brussels Sprouts,	$\frac{1}{2}$ oz.
Broccoli,	$\frac{1}{2}$ oz.
Cabbage, Early,	3 oz.
Cabbage, Savoy,	$\frac{1}{2}$ oz.
Cauliflower,	$\frac{1}{2}$ oz.
Carrot,	2 oz.
Celery,	100 plants.
Kale, Curly,	$\frac{1}{2}$ oz.
Leek,	1 oz.
Lettuce,	1 oz.
Mint,	3 plants.
Marjoram,	3 plants.
Onion (Autumn-sown),	100 plants.
Onion,	3 oz.
Onion, Potato,	1 stone.

LIST B—*continued.**Vegetables—continued.*

Parsnip,	.	.	.	.	2 oz.
Parsley,	.	.	.	.	1 oz.
Peas,	.	.	.	.	3 qts.
Potatoes, Early (to be boxed),	.	.	.	.	4 st.
" Late,	"	.	.	.	4 st.
Rhubarb,	.	.	.	.	6 plants.
Sage,	.	.	.	.	3 plants.
Thyme,	.	.	.	.	3 plants.
Turnips,	.	.	.	.	2 oz.
Vegetable Marrow,	.	.	.	.	1 packet.

Flowers.

Candituft,	.	.	.	.	1 packet.
Canterbury Bells,	.	.	.	.	1 "
Dahlias,	.	.	.	.	2 plants.
Larkspur,	.	.	.	.	1 packet.
Lupin,	.	.	.	.	1 "
Mignonette,	.	.	.	.	1 "
Nasturtium,	.	.	.	.	1 "
Roses,	.	.	.	.	4 plants.
Sunflower,	.	.	.	.	1 packet.
Wallflower,	.	.	.	.	1 "
Sweet Pea,	.	.	.	.	1 pint.

Artificial Manures.

Muriate of Potash,	.	.	.	.	3 st.
Nitrate of Soda,	.	.	.	.	3 st.
Superphosphate,	.	.	.	.	4 st.

Form A. 153 (a.)

INSTRUCTION IN FRUIT-GROWING AND GENERAL GARDENING.

The Department have at present a few vacancies in their Horticultural School at the Albert Agricultural College, Glasnevin.

The course provided at this School is suited for those who have already had experience in fruit growing and general gardening, such as might be obtained by working for two or three years under a fully qualified gardener. In such cases a training of from one to two years should suffice to qualify for the post of Instructor in Horticulture. In addition to the practical work in the gardens, class-room instruction will be given to the pupils to enable them to understand the scientific principles underlying horticulture.

Applicants must be at least twenty years of age on the 1st October, 1907, in good health and of strong constitution, and should have received a fair general education.

A limited number of pupils will be admitted as the result of an examination which will be held in October, 1907. The subjects included in the examination will be:—

- (1.) English—to be tested by dictation and a short essay.

- (2.) Arithmetic—the first four rules, simple and compound; a knowledge of weights and measures; Proportion, Practice, Interest, Averages and Percentages.
- (3.) Practical Fruit-growing and Gardening.

A high standard will not be expected in English or Arithmetic. The examination in practical fruit-growing and gardening will cover the whole range of these subjects.

Particulars as to the date and place of the examination will be notified in due course to each eligible applicant.

No expenses will be allowed to candidates in connection with their attendance at this examination.

Successful candidates will be required to enter on their duties on the date fixed by the Department. They will receive wages varying from 18s. to 25s. per week, according to their qualifications, and will have to find their own board and lodging. They will be subject to the conditions under which the gardeners at the College are employed.

The Department do not undertake to employ or to procure employment for the pupils at the close of the course, but the names of those who qualify will be sent to County Committees of Agriculture with an intimation that, if selected by a County Committee, their appointment will be approved by the Department.

A number of men who have already passed through the School are now employed by County Committees at a salary of £2 per week together with expenses of locomotion.

Applications to attend the examination must be made on the forms provided for the purpose, which may be had on application to

THE DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION-STREET,
DUBLIN.

Last date for making application—11th October, 1907.

Form A. 181 (a).

AVONDALE FORESTRY STATION, RATHDRUM, COUNTY WICKLOW.

Arrangements have been made for the training of young men as apprentices in Forestry at the above-named Station.

The period of apprenticeship may extend over one, two, or three years according to the industry and efficiency displayed by the apprentice.

The apprentices are required to work daily in the woods under the direction of the Superintendent, from whom they receive instruction in the proper methods of forestry. In the evenings class-room instruction explanatory of the principles underlying the practical operations is provided.

Applicants for apprenticeships must be at least twenty years of age on the 1st October, 1907, in good health, and of strong constitution,

and should have received a fair general education. Preference will be given to those applicants who have had experience in working in woods.

A limited number of apprenticeships will be awarded on the result of an examination which will be held in Dublin early in October, 1907. The subjects included in this examination will be—

English—to be tested by dictation and a short essay.

Arithmetic—the first four rules, simple and compound; a knowledge of weights and measures; Proportion, Practice, Averages, and Percentages.

A high standard will not be expected.

Particulars as to the date and place of the examination will be notified in due course to each eligible applicant.

No expenses will be allowed to candidates in connection with their attendance at this examination.

Successful candidates will be required to enter on their duties on the date fixed by the Department. They will be provided with board and lodging at Avondale House and will receive an allowance of 4s. per week from the date of their commencing work at the Station. The hours of outdoor work will be from 7 a.m. to 6 p.m. in summer, and from daylight to dark in winter, with an interval of one hour for dinner. The engagement between apprentices and the Department may be determined at any time by one week's notice on either side.

The Department do not undertake to employ or to procure employment for apprentices on completion of their training.

Applications for apprenticeships must be made on the forms provided for the purpose, which may be had on application to

THE DEPARTMENT OF AGRICULTURE
AND TECHNICAL INSTRUCTION,
UPPER MERRION STREET,
DUBLIN.

Last date for making application—5th October, 1907.

FRUIT SHOW AT PILTOWN, COUNTY KILKENNY.

A show of Irish Fruit will be held at the Courthouse, Piltown, Co. Kilkenny, on Friday, 11th October. The Show has been organised by the Department of Agriculture and Technical Instruction for Ireland in connection with a series of experiments which are being conducted by the Department in order to ascertain whether the cultivation of fruit on strictly commercial lines, and as a field crop might advantageously be introduced into certain districts in Ireland suitable for fruit culture. Since 1903 forty residents in the neighbourhood of Piltown have planted an acre each of their lands with fruit trees supplied by the Department for the purpose of these experiments. Excepting a few non-competitive exhibits by local nurserymen and others, the entries will be restricted to fruit grown in connection with the experiments at Piltown.

III.—TECHNICAL INSTRUCTION.

PROGRAMME FOR DAY SECONDARY SCHOOLS, SESSION 1907-8.

I.

EXPLANATORY CIRCULAR TO MANAGERS AND PRINCIPALS OF DAY SECONDARY SCHOOLS.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION-STREET, DUBLIN,
July, 1907

SIR, OR MADAM,

In issuing the Regulations for the teaching of Experimental Science, Drawing, Manual Instruction, and Domestic Economy in Day Secondary Schools for the session 1907-8, the Department have not considered it necessary to reprint in one volume the syllabuses of the several subjects of instruction, and the other matters relating to Day Secondary School work, which were included in the full Programme published by the Department in June, 1905. The Prefatory Note to the Syllabuses in Experimental Science, at page 37 of this Programme, has, however, been issued separately with a view to its more general distribution among the teachers of the courses. The Syllabuses are also published separately.

The grant administered under the Programme is a sum of money voted annually by Parliament for instruction in Science and Art with the object of maintaining an efficient system of instruction in these subjects in Day Secondary Schools. The aid is given under the conditions set out in the detailed Regulations.

With regard to the changes in Regulation II., first introduced by the Department in 1906-7, attention is directed to the fact that the Inspectors have been instructed to exercise care that students who are capable of promotion to the higher course are not permitted to repeat a course. The Department will withhold grants in respect of instruction given to pupils who may repeat the course of any year, if, in the opinion of the Inspector, these pupils had made such progress as to enable them, with advantage, to take the work prescribed for the subsequent year. The names of all pupils who may be working a second time through one of the syllabuses of the Programme should be notified to these Offices at the beginning of the session, immediately the arrangements for the classes have been completed, in order that the Department may be in a position to instruct their Inspectors to visit the school, where necessary, with a view to reporting on the eligibility of the students in question for promotion to higher courses. In no case will pupils who were *presented* to the Department's Inspectors for the practical test for Honours candidates in connection with the examinations of the Intermediate Board in June last be admitted for grants in respect of a repetition of the same course during the year 1907-8. An intimation of the Department's decisions in regard to the payment or otherwise

of grants on account of attendance at repeated courses will be issued to the Managers on receipt of the Inspectors' report.

The efficiency of the instruction will, as hitherto, be tested by inspection, as a rule without notice. During the latter part of the school session, however, notice will be given of a visit of Special Inspection for that session. At all visits it will be within the discretion of the Inspector to test any or all of the classes by practical exercises in the laboratory, or by *viva voce* examination of classes or of individuals, or by written examinations, or by a combination of these methods. It should be observed that the rates of payment may be increased by one-tenth or reduced by one or more tenths, as the Department, on consideration of the Inspector's report, may determine. Reduction by more tenths than one will be exceptional. In cases in which such exceptional treatment is necessary, the Department will in all probability adopt the alternative of giving a reasonable warning, and, unless marked improvement follows, will remove such a school from the list of those aided by the system of grants.

The qualifications required of teachers are set out in Circulars 23, 16, 24, and 25. The Department reserve the right to withdraw recognition of a teacher's qualifications should circumstances occur to render such a course desirable.

Summer Courses for Teachers will be continued as heretofore, but it is hoped that they will shortly have satisfied the need of qualifying teachers and will develop into "Post Graduate" Courses on special subjects for those already qualified.

The details of the arrangement by which schools and pupils may obtain recognition under the regulations of the Intermediate Education Board for proficiency in Experimental Science, Drawing, and Domestic Economy, as well as the conditions required for a Pass in these subjects, are published in the rules of that Board.

I am,

Sir, or Madam,

Your obedient Servant,

T. P. GILL,

Secretary.

II.

REGULATIONS FOR THE ADMINISTRATION AND DISTRIBUTION OF GRANTS FOR EXPERIMENTAL SCIENCE, DRAWING, MANUAL INSTRUCTION, AND DOMESTIC ECONOMY IN DAY SECONDARY SCHOOLS IN IRELAND.

I.—*Subjects.*

1. **EXPERIMENTAL SCIENCE** shall mean such a system of instruction in Physical and Natural Science as will involve the greater part of the work being done by the pupils themselves in an approved laboratory.

2. **DRAWING** shall mean a system of instruction in Freehand, Object, Model, and Geometrical Drawing, and Modelling.

3. **MANUAL INSTRUCTION** shall include instruction in the use of tools employed in wood or metal-working, and drawing in connection therewith.

4. DOMESTIC ECONOMY shall include Cookery and Home-sewing and may include Laundry-work, or any other form of practical instruction in household management of which the Department may approve.

5. No scheme will be approved unless the Department are satisfied that due provision is made for the instruction of the pupils in the other main branches of a general education.

II.—Grants.

Grants in respect of courses of instruction in Experimental Science, Drawing, Manual Instruction, and Domestic Economy, may be made, in accordance with the following regulations, to Day Secondary Schools in which sufficient provision is made for instruction in the other main branches of a general education :—

1. Grants shall be payable in respect of attendances made by those students only who are twelve years of age on or before the 31st day of May in the calendar year in which the course is entered upon, and who have completed an education which would entitle them to be placed in the Sixth Class of a school under the Board of National Education in Ireland. Pupils on the roll of a National School are not eligible for attendance grants.

2. Grants shall be payable in respect of attendances made by the pupils of those schools only which have been approved by the Department.

3. Grants on the average attendance of duly qualified pupils will be made for each hour of instruction per week throughout the school year, according to the following scale :—

EXPERIMENTAL SCIENCE.—10s. for the first year of the course ; 12s. 6d. for the second year of the course ; 15s. for the third year of the course ; and 20s. for the fourth year of the course.

DOMESTIC ECONOMY (*as a Special Course*).—8s. for the third or fourth year of the course.

DRAWING.—5s. for the first year of the course ; 6s. for the second year of the course ; 7s. for the third or fourth years of the course.

MANUAL INSTRUCTION AND DOMESTIC ECONOMY (*Auxiliary Courses*).—6s. for the first year of the course ; 7s. for the second year of the course ; 8s. for the third or fourth years of the course.

4. The numbers on which grants for each subject are to be calculated, at the foregoing rates, shall be determined by adding together the total number of hours of attendance made by all the pupils in that subject (at the approved time-table hours), and dividing by forty, the normal school year being regarded as of forty weeks.

5. The syllabuses of instruction, "first year" and "second year" of the Preliminary, and "third year" and "fourth year" of the Special Courses, correspond with the "first year," "second year," etc., rates of payment.

6. Grants will be payable in respect of the attendances of any one pupil for not more than two years in the Syllabus of the First or

Second Year of the Preliminary Course, or of the Third Year of any Special Course, and for not more than one year in the Syllabus of the Fourth Year of any Special Course. Payments will not be made in respect of any one pupil for more than five years in all. It is not obligatory that the claims should be made in consecutive academic years.

7. Grants will not be paid in respect of pupils who are reported by the Department's Inspectors as unfit to attend the Courses in which they have been receiving instruction.

III.—*Conditions of Grants.*

1. The courses of instruction should begin in August or September of any year, and must be continuous throughout the school year. The hours per week devoted to the course must be fairly distributed throughout the week. In exceptional circumstances, where previous application has been made, the Department may sanction another arrangement. Deviations from the approved time-table, unless previously sanctioned, will be regarded as a serious irregularity.

2. Claims for attendance grants may be preferred on behalf of those students only who have punctually and regularly attended instruction in all the obligatory subjects of the Preliminary, or of a Special, course.

3. Claims for attendance grants may be preferred on behalf of those students only who have been registered as in attendance at instruction in *each* of the prescribed subjects on or before the *1st day of November* in any academic year.

4. Grants will not be payable in respect of the attendances of pupils of any school which, after working for one academic year in accordance with the Department's regulations, has not the two years' Preliminary Course in operation.

5. Grants will not be payable in respect of attendances at Manual Instruction or Domestic Economy (Auxiliary Courses) in any year, except in the case of pupils who have attended instruction in the Preliminary Course of Experimental Science and Drawing or in one of the subjects of a Special Course, in that year, in accordance with the Regulations.

6. Grants will not be payable in respect of the attendances of a pupil at instruction in a subject of the fourth year, which was not the subject in respect of which a claim was made on behalf of the same pupil in the third year; except in the case of Geology.

7. Grants will be made only upon a satisfactory report by an Inspector of the Department. The Inspector will satisfy himself not only that the attendances on which the claim is based have actually been made, but also that the instruction is of a class superior to that given in Elementary Schools.

8. The grant to be made in respect of any subject of any year in accordance with the foregoing regulations, may, in exceptional cases, be increased by one-tenth when the Inspector of the Department is of opinion that the work is of conspicuous merit. It may also be reduced by one or more tenths for defects of equipment, or of organisation, or of instruction, or for any other cause which may tend to lessen the efficiency of the work done.

IV. — *Registration.*

Attendance registers will be supplied by the Department upon receipt of the form of application for recognition of the classes (Form S. 44); attendances not registered in the manner indicated on the official registers, or registered before the receipt of Form S. 44, will be disregarded. A class may not be said to have begun until attendances are so registered.

V. — *Courses of Instruction.*

1. The Courses of Instruction include :—

(a.) A **PRELIMINARY (TWO YEAR) COURSE**, which is obligatory on all pupils and on all schools claiming grants under these regulations, and

(b.) **SPECIAL COURSES**, which are optional.

2. **THE PRELIMINARY (TWO YEAR) COURSE** may vary according to the character of the school; but it shall include Experimental Science and Drawing; and not less than three hours per week shall be devoted to Experimental Science, and not less than one hour per week to Drawing.

In schools claiming grants for more than six hours' instruction in the Preliminary Course in any week, Manual Instruction or Domestic Economy must form part of the Preliminary Course; and, in such cases, at least one and a-half hours' instruction per week must be devoted to one of those subjects.*

In Schools also which do not provide instruction in one of the Special Courses, or whose Special Course has not been recognised by the Department for attendance grants, Manual Instruction or Domestic Economy, with Experimental Science and Drawing, shall constitute the Preliminary Course; and in order that the Preliminary course in such schools may be recognised, the time-table must show that at least six hours' instruction per week is devoted to those three subjects.

3. A **SPECIAL COURSE** must include one, but may not include more than three, of the undermentioned subjects, to which Manual Instruction or Domestic Economy (unless taken as a Special Course) may be added. Managers will be allowed much latitude in selecting the subject or subjects most suitable to their own schools.

Managers desiring to have the special courses of their schools recognised will be required to show that a fair proportion of the pupils who have worked through the Preliminary Course are prepared to attend the Special Course; that not less than three hours per week are to be devoted to each subject of the Special Course; and that at least one-third of the time is to be assigned to theoretical instruction.

Not more than six hours per week may be considered when computing the total number of hours of attendance at a subject included in a Special Course.*

4. The subjects of the Preliminary and Special Courses shall be followed in the order prescribed in the Department's published Syllabuses, and pupils may not be admitted to any course, who have not worked satisfactorily through the preceding, or equivalent, courses.

* Attendances at Special Inspections may be claimed on, in addition to the hours set apart in the general time-table.

5. The subjects of the Special Courses are :—

- (1.) Physics : Third year—Heat, Light, and Sound ; fourth year—Magnetism and Electricity.
- (2.) Chemistry : Third year—Inorganic Chemistry ; fourth year—Inorganic Chemistry, with some Elementary Organic Chemistry.
- (3.) Mechanical Science : Third year syllabus ; fourth year syllabus.
- (4.) Natural Science :—
 - (a.) Botany : Third year syllabus ; fourth year syllabus.
 - (b.) Physiology and Hygiene : Third year syllabus ; fourth year syllabus.
 - (c.) Geology : A fourth year subject.

Each of these divisions of Natural Science will count as one subject in the manner indicated.

- (5.) Domestic Economy (Special Course) : Third year syllabus ; fourth year syllabus.
- (6.) Drawing : Third year syllabus ; fourth year syllabus.

VI.—*Laboratories.*

No grant will be made for instruction unless due provision is made for experimental work in Science, on the part of the pupils, in properly equipped and approved laboratories.

VII.—*Duration of Lessons.*

1. Practical instruction in Science, Manual Instruction and Domestic Economy, must be given in lessons of at least eighty minutes' duration.
2. Lessons of less than forty minutes' duration will not be considered in computing the "total number of hours of attendance."
3. The minimum time per week recognised for grants on behalf of attendance at Manual Instruction or Domestic Economy is one and a-half hour.
4. The time-table of the school must be so arranged as to leave sufficient time to the teacher for preparation of laboratory work.

VIII.—*Size of Classes.*

1. Not more than forty pupils shall be taken at a time by one teacher for Theoretical Instruction, nor more than twenty for Practical Instruction in any subject, unless an assistant, recognised by the Department, is provided. In that case the number for Practical Instruction may be increased to thirty. Instructing in Drawing may, for this purpose, be regarded as theoretical instruction.
2. Where classes for practical instruction are small, concurrent instruction in two subjects may be exceptionally allowed, but the approval of the Department must be obtained in each case.
3. Concurrent instruction in the first and second year syllabuses of the Preliminary Course in Drawing will be allowed under one teacher where the number of pupils under instruction does not exceed thirty.

IX.—*General Conditions.*

1. The qualifications of the teachers and assistant teachers, and the time-table of the school, must be approved by the Department.

2. It shall be a condition of grants being made, that, except in the case of teachers who give their services gratuitously, a fixed salary shall be paid to the teachers of the classes, either in respect of these classes or of their work in the school as a whole; that a reasonable sum of money shall be provided for the upkeep of the premises; and that the grants obtained shall be paid into the school account and be used for improving the efficiency of the school.

3. That portion of the income of a school, which is derived from grants in accordance with these regulations, must be applied to such purposes as shall be approved by the Department. If at any times it appears that the application of the income is unsatisfactory, the assistance of the Department may be withdrawn. An account of the receipts and expenditure of each school in respect of these grants must be furnished to the Department annually, on a form to be had from the Secretary.

4. The Department reserve the right to withhold grants under these regulations from any school conducted for private profit in which the fees are, in the Department's opinion, excessive, or which is situated in a locality already sufficiently supplied with public institutions.

5. The decision of the Department in all questions arising in connection with the payment of grants under this programme must be final.

III.

OFFICIAL CALENDAR, 1907-8.

1907.

August-September.—Application for the renewal of recognition of classes to be submitted at least a fortnight before their re-opening (Form S. 44b.).

August 31st.—Latest date for applying for admission as a fee-paying student to the Royal College of Science, Dublin (Form S. 157).

September 30th.—Latest date for submitting claims for attendance grants in respect of the Session 1906-7 (Form S. 62).

September 30th.—Latest date for submitting to Department application for the renewal of recognition of classes for the Session 1907-8 (Form S. 44b.).

Time-tables to be forwarded within fourteen days after the first meeting of the classes.

November 1st.—Pupils must have been registered as in attendance at each of the obligatory subjects of the preliminary, or of a special, course, on or before this date. (See Regulations, Section III., paragraph 3).

1908.

February 15th.—Latest date for sending in statement of the number of pupils following the courses, and of the number to be presented for the Intermediate Education Board's Examinations (Form S. 127).

March 31st.—Latest date for applying for admission to the Summer Courses of Instruction to Teachers (See Form S. 41)

March-June.—“Special” Inspections.

April 30th.—Latest date for forwarding applications for admission to the examination for Science and Technological Scholarships (See Form S. 33).

May 1st.—Managers of Day Secondary Schools, not on the list of schools recognised for grant by the Department, should apply by this date for admission of their schools to this list if grants are to be claimed in respect of the Session 1908-9 (Form S. 44a.).

June 14th.—Returns showing the number of hours' instruction in the subjects of the Department's Programme, received by students presenting "Experimental Science" for the Intermediate Education Board's Examinations, to be forwarded to the Department by this date (Form S. 121). These returns will not be accepted by the Department after the 16th June unless accompanied by a remittance of the sum of 10s. 6d.

July 1st, 2nd, and 3rd.—Examinations for Science and Technological Scholarships and for entrance to the Royal College of Science, Dublin.

July 8th.—Summer Courses for Teachers begin.

Form S. 190.

COMMERCIAL AND INDUSTRIAL SCHOLARSHIPS, 1907.

(a) COMMERCIAL SCHOLARSHIPS.

The Department will, in October, 1907, award not more than three Commercial Scholarships to young men having a sound general education, and some commercial experience. The object of the Scholarships is to afford facilities for the holders' obtaining training in some higher Institution, approved by the Department, with a view to their employment as teachers of Commercial Subjects in Ireland. The Scholarships are of the value of £100 each, and are tenable for two years. The Department, however, reserve the right to determine a Scholarship at any time within this period upon being satisfied that its continuance is for any reason undesirable.

Candidates must be at least twenty-one years of age on the 1st September, 1907.

Successful candidates will be required to enter into an undertaking that they will engage in the teaching of Commercial subjects after the termination of their Scholarships.

Candidates must fill in and return, addressed to the Secretary of the Department, not later than 25th September, 1907, Form S. 191, copies of which may be had on application.

(b) INDUSTRIAL SCHOLARSHIPS.

The Department also propose to award three Industrial Scholarships to persons engaged in industries, such as the Woollen, Linen, Leather, and Tanning Industries.

The object of these Scholarships is to enable selected persons, who must already have been engaged in one of the higher branches of the Industry, to take a full course of instruction in an institution providing

special courses of an approved character, with a view to training them for the management of such an Industry. Candidates will be required to show that there is a reasonable expectation of their being able to find suitable employment in the Industry in Ireland after the termination of their Scholarships.

The Scholarships will be tenable at some higher Institution, to be approved by the Department, in which the Industry and the principles underlying it, are taught. They will be of the value of £80 each, and may be renewed for a second or a third year at the discretion of the Department.

Candidates must apply on Form S. 192, which should be returned to the Department duly filled in not later than the 25th September, 1907.

The Scholarship holders will be selected by the Department on consideration of the qualifications and experience of the applicants.

Certificates of good character will be required from all applicants, and selected candidates will be required to produce a medical certificate of health, and an authenticated copy of Certificate of birth.

The decision of the Department in regard to the selection of Candidates, or to any other question arising out of these Scholarships will be final.

Form S. 108.

I.—SPECIAL EXAMINATIONS FOR TEACHERS' QUALIFICATIONS IN EXPERIMENTAL SCIENCE.

The Department will hold, in 1908, special examinations for Teachers' qualifications in Experimental Science. Each examination will be divided into two portions, the first a written test to be held on Saturday, the 2nd May, from 11 a.m. to 2 p.m., and the second a practical examination to be held subsequently on a date to be fixed by the Department, and which will be duly notified to candidates. Provisional qualification to give instruction in the First, Second, Third, or Four Year Syllabuses of the Department's Programme of Experimental Science for Day Secondary Schools, will be granted to those candidates who pass the Examination.

The subjects of the special Examinations will be :—

- (1) First Year Syllabus of the Preliminary Course.
- (2) Second Year Syllabus of the Preliminary Course.
- (3) Physics (Third Year Syllabus of the Programme).
- (4) Physics (Fourth Year Syllabus of the Programme).
- (5) Chemistry (Third Year Syllabus of the Programme).
- (6) Chemistry (Fourth Year Syllabus of the Programme).
- (7) Mechanical Science (Third Year Syllabus of the Programme).
- (8) Mechanical Science (Fourth Year Syllabus of the Programme).
- (9) Botany (Third Year Syllabus of the Programme).
- (10) Botany (Fourth Year Syllabus of the Programme).
- (11) Physiology and Hygiene (Third Year Syllabus of the Programme).
- (12) Physiology and Hygiene (Fourth Year Syllabus of the Programme).
- (13) Geology.

The Examination in any subject will be open only to those teachers in secondary schools who have received at least 100 hours' practical instruction in that subject within two calendar years previous to the date of the present examination. Before entering upon the course of instruction each Teacher must obtain, in writing, the Department's approval of the conditions under which such instruction is to be given.

Teachers who have made satisfactory attendance at the Summer Courses of Instruction conducted by the Department in 1906 and 1907, and who, as a result of the examination at the conclusion thereof, failed to secure a certificate or obtained recognition to teach for one year only, will be admitted to the Special Examination in that subject without having to satisfy the Department as to attendance at further courses of instruction.

Candidates will not be permitted to sit for Examination in more than one subject in any one year.

Should a sufficient number of applications for examination be received the Department will arrange to hold the written examination at Dublin, Belfast, Cork, Londonderry, Limerick, Waterford, and Galway, and, in very exceptional circumstances, other centres might be arranged for, provided that special written application is made by School Managers before the 29th February, 1908.

Application for admission to the examination must be made before the 29th February, 1908, on Form S. 118, copies of which may be obtained, after the 1st January, upon application to the offices of the Department.

II.—REGULATIONS UNDER WHICH THE DEPARTMENT ARE PREPARED TO RECOGNISE SPECIAL COURSES OF INSTRUCTION IN EXPERIMENTAL SCIENCE FOR TEACHERS IN DAY SECONDARY SCHOOLS.

The Instructor in charge of classes for Teachers must be specially qualified, and his qualifications must be approved of by the Department for the purposes of the Special Course of instruction.

The Laboratory must also be approved of by the Department for the purposes of the Special Course of instruction.

Special Classes, conducted during the winter in a Technical School or central institution, other than Training Colleges, may be registered as Science Classes, and grants earned according to the regulations and scale of payment set out in the Programme for Technical Schools and Science and Art Schools and Classes.

Attendance at theoretical instruction may not be taken into account when computing the 100 hours' practical instruction referred to in the third paragraph of Section 1 of this form.

Application for the recognition of special classes for Teachers must be made by letter, accompanied by detailed proposals upon Forms S. 54 and 59. Attendance at lessons previous to the receipt of the Department's written approval of the arrangements may not be reckoned as part of the 100 hours' practical instruction.

NOTES AND MEMORANDA.

A meeting of the Agricultural Board was held at the Office of the Department, Upper Merrion-street, Dublin, on

Meetings of the Boards: Wednesday, the 23rd October. The following were present:—Mr. T. W. Russell, M.P., Vice-

The Agricultural Board. President of the Department (in the chair); Mr. Alexander L. Clark, J.P.; Very Reverend

James Daly, D.D.; Mr. Robert Downes, J.P.;

Colonel N. T. Everard, H.M.L.; Sir Jocelyn Gore-Booth, Bart., D.L.;

Most Reverend Denis Kelly, D.D., Lord Bishop of Ross; Mr. William

McDonald, J.P.; the Right Hon. Lord Monteaigle, K.P., D.L.; Mr. H.

de F. Montgomery, D.L.; Mr. P. J. O'Neill, J.P.; and Mr. Alexander

Robb, J.P.

Mr. T. P. Gill, Secretary of the Department; Professor J. R. Campbell, Assistant Secretary in respect of Agriculture; Mr. R. Cantrell, I.S.O., Chief Clerk; Mr. W. G. S. Adams, M.A., Superintendent of the Statistics and Intelligence Branch; Mr. J. S. Gordon, B.Sc., Chief Agricultural Inspector; Mr. J. P. Walsh, Clerk in Charge of Accounts; Mr. J. D. Daly, M.A. (who acted as Secretary to the meeting); and Mr. J. V. Coyle, were also present.

The Board had under consideration the progress of County Agricultural Schemes, including live stock, agricultural instruction, agricultural classes, poultry keeping, butter-making, horticulture and bee-keeping, cottage and farm prizes, subsidies to shows, flax cultivation, special scheme for the encouragement of tillage, and special schemes for congested districts.

The following, among other matters, were also under consideration:—arrangements regarding agricultural schools and stations, encouragement of winter dairying, experiments in the growing of barley and wheat, the marketing of Irish produce in Great Britain, and proposals relating to inland fisheries.

A meeting of the Board of Technical Instruction was held on Tuesday, the 13th August, at the Offices of the

Department, Upper Merrion-street, Dublin.

The Board of Technical Instruction. The following were present:—Mr. T. W. Russell, M.P., Vice-President of the Department, in the Chair; Mr. Christopher J. Dunn,

J.P.; Mr. Thomas Edmondson, J.P.; Sir James Henderson, A.M., D.L.;

Alderman Michael Joyce, M.P.; Very Reverend P. J. Lally, P.P.; Alderman Abraham Lyon, J.P.; Mr. William Macartney, J.P.; Mr. Patrick J. Magee; Mr. W. R. J. Molloy, J.P., M.R.I.A.; Mr. Thomas Power; Mr. Richard Sisk, and Mr. Alexander Taylor.

Mr. T. P. Gill, Secretary of the Department, Mr. George Fletcher, Assistant Secretary in respect of Technical Instruction; Mr. W. G. S. Adams, M.A., Superintendent of the Statistics and Intelligence Branch; Mr. J. D. Daly, M.A. (who acted as Secretary to the meeting); and Mr. A. Kelly, were also present.

Technical Instruction Schemes in respect of the Session 1907-8 for the following urban and county areas, were considered.

Urban Districts.—Armagh, Athlone, Ballymena, Ballymoney (Joint Urban and Rural), Bangor, Blackrock, Bray, Carrickfergus, Clonmel, Coleraine, Enniscorthy, Galway, Holywood, Kingstown, Larne, Lurgan (Municipal Scheme), Lurgan (Convent Scheme), New Ross, Newry, Newtownards, Pembroke, Portadown, Rathmines and Rathgar, Sligo, Tipperary (Joint Urban and Rural), Tralee, Wexford.

Counties.—Antrim, Carlow, Clare, Cork, Dublin, Kerry, Kildare, Kilkenny, King's County, Leitrim, Louth, Mayo, Meath, Tyrone, Wexford, Wicklow.

The schemes having been discussed and approved, the Board concurred in the application of grants in aid thereof from the funds of the Department.

The Assistant Secretary in respect of Technical Instruction explained the arrangements that had been made for the conduct of the Short Summer Courses for teachers for which provision had previously been made with the concurrence of the Board. He stated that the number of teachers attending the Courses arranged this year was 741, that the number of Courses provided was 61, and that the number of teachers engaged to conduct these Courses was 102.

Further provision was made for Commercial and Industrial Scholarships, and the Board had also under consideration a report on Schools of Higher Domestic Economy.

On the 12th August a deputation, consisting of the following

**Winter Dairying :
Deputation to the
Department.**

members, waited on the Vice-President at the Offices of the Department of Agriculture and Technical Instruction, Upper Merrion street, Dublin :—Messrs. W. L. Stokes, J.P., Limerick ; R. Gibson, Limerick ; D. L. Roche, J.P., Limerick ; T. Wibberley,

County Instructor in Agriculture, Limerick ; C. J. Bentley, Pallas green ; D. H. de Burgh, J.P., Dromkeen ; C. Daly, Cork ; D. Hegarty Secretary Irish Creamery Managers' Association, Cork ; J. Sheehan, Ballinard Co-operative Dairy, Co. Tipperary ; W. Beddoes, J.P., Waterford ; R. R. Barton, Annamore.

Mr. T. P. Gill, Secretary of the Department, and Professor J. R. Campbell, Assistant Secretary in respect of Agriculture, were also present.

Mr. Stokes and Mr. Gibson stated the views of the deputation at considerable length, and pointed out how vitally important was the encouragement of winter dairying if the butter trade of the country were to be maintained and improved. They explained the difficulties of carrying on winter dairying in the rural districts owing to the dearth of labour for tillage.

The Vice-President said that the Department were thoroughly alive to the importance of winter dairying in Ireland, and they needed no arguments to convince them of its utility. He would ask the deputation to submit some definite suggestions. Any such suggestions the Department would be prepared to consider carefully in consultation with the Agricultural Board. He assured the deputation of his personal anxiety to see some scheme put into operation as soon as possible, and stated that it was quite within the scope of the Department's functions to provide the means for undertaking such operations.

The deputation made suggestions for certain experiments, and the Vice-President said that he hoped that it would be found practicable to have a series of such experiments carried out with the assistance of the County Committees of Agriculture, or of sub-committees appointed by the County Committees, when the matter was fully elaborated. The deputation undertook to have the subject discussed in conference with the County Committees, and to draw up the details of a scheme for submission to the Department, with a view to its being considered at an early meeting of the Agricultural Board.

A vote of thanks to the Vice-President, proposed by Mr. Stokes and seconded by Mr. Beddoes, having been passed, the deputation withdrew.

An exhibition of Irish industries was held on the 26th, 27th, and 28th September, at the Royal Horticultural Society's Hall at Westminster. The occasion was the opening of the fifth annual "Aonach," organised by the Gaelic League of London. There were many exhibits

"Aonach" in
London.

of Irish woollens, linens, cloths, &c., as well as specimens of hand-made lace and other products of home industries. The chief feature of the exhibition, however, was the display of agricultural produce. The leading exhibit in this section was the composite one arranged by the Department of Agriculture and Technical Instruction for Ireland. The Department had a large stand, and the exhibits on it demonstrated the considerable advance that has been made in the character of the produce, and in the methods of handling, grading and packing so as to meet the requirements of dealer and consumer. The display included an interesting collection of pulped fruits, jams, jellies, and honey. Tobacco, too, in the leaf, cut for pipe use, in cigarettes and cigars, grown by Colonel Everard, at Randalstown, Co. Meath, formed an interesting feature of the exhibition.

The question of establishing a brand for mackerel cured in Ireland for export formed the subject of an exhaustive

The Herring Brand series of inquiries, and has already been referred to in the pages of the Department's
in Scotland. Journal.* Some of the evidence given has

been regarded by supporters of the brand system in Scotland as mischievous, in so far that it was considered to have instituted an unfair comparison between Irish herrings which are cured for export and the herrings which are eligible for the Government brand in Scotland. Whatever individual witnesses may have said at the inquiries above referred to, the Department desire to make it perfectly clear that a comparison of the specially fine herrings cured in the North of Ireland can only be made with the best class of herrings in Scotland, namely, those taken on the west coast of that country, *which are not eligible for the brand.*

There is no basis of comparison between the Irish herrings cured for export and the east coast herrings of Scotland, to which the various grades of the Government brand are adapted. There is an immense export trade from Scotland in these latter herrings. The Scottish brand now, as formerly, is highly respected in Germany and Russia. Business is transacted on its guarantee, which is sufficient testimony of the great care taken to maintain its character by the Fishery Board of Scotland

* See pp. 716-726, Vol. VII., No. 4.

The late arrival of mackerel in the Autumn of 1906 was to some extent compensated for by the continued

The Irish Spring Mackerel Fishery, 1907. presence of the shoals on many parts of the coast in January and February, long after the period of their usual stay. In January great

takes were made by "nobbies" and by row boats off Valentia. The temptation to overload the row boats was very great and three boats were swamped with the loss of eight lives, while others narrowly escaped. Great hopes were entertained that there might be a prosperous spring fishing, particularly as April opened with a week of summer-like weather. The balance of that month, as well as May and June, was, however, characterised by storms which made fishing on the Atlantic coast often impossible. The record for the year up to 30th of June, when, according to custom, our statistical returns close, is consequently bad. The mackerel catch in what has been held to be the spring season shows a falling off of 53,655 cwts. and in value, of £4,840. The falling off was felt more or less at all the ports, except at Valentia Harbour, where a large number of boats congregated, and the catch, as, returned for Knightstown and Caherciveen, was 21,934 cwts. as against 16,005 cwts. for the preceding year, with a more than proportional increase in the money value.

In treating of the general decline in the catch as recorded in the statistics above referred to, one most important fact must be mentioned. The prolongation of wintry weather into the early summer months, delayed the departure of the fish, so that when the weather improved in July there was what may be looked on as a most successful extension of the spring fishery for a couple of weeks, which probably resulted in additional landings to the extent of about 40,000 cwts, the value of which would be some £10,000. During late years a considerable portion of the spring catch is cured for the American market, particularly during the month of June. Nearly 13,000 barrels were thus put up this season before the end of that month. The curing continued during July. A large number of firms were engaged in this trade—and two Norwegian schooners came to Cleggan, County Galway, where they bought mackerel, and in June and July gave considerable employment to the local people in curing and packing 1,374 barrels in the best style. In July many fishermen gave up mackerel fishing owing to the fact that in some places the catching of lobsters, and in others drifting for salmon, offered greater chances of profit.

As usual, telegraphic information of the progress of fishing was collected and despatched to all important centres twice each week during the season, and the following notes are based on the information thus obtained :—

Although at Kinsale and a couple of other stations a considerable quantity of fish was captured during the second week in April, it was not until the following week that operations had generally commenced. The most successful week was that ended 25th May, during which 15,164 boxes were landed by 155 boats, being an average of 20·44 boxes per boat per night.

Taking the principal stations *seriatim* :—

From Kinsale, during the earlier part of the season, more boats were employed than from any other station.

Some Local Their number at one time reached 65. 1,670
Results. boxes were landed during the first half of April. The next two weeks were the best of

the season, 12,676 boxes having been taken. In the week ended 20th April, 4,764 boxes were taken by 42 boats on five nights, an average catch of 22·68 boxes per boat per night. During the next week 58 boats fished five nights, and landed 7,912 boxes, being an average of 27·28 boxes per boat per night. Although the number of boats increased, there was a decided falling-off in the capture in May, at the end of which month the vessels began to leave. The mackerel fetched at first 25s. per hundred, but afterwards fell to 15s. and 10s., and in the month of June 8s. was the average price.

At Baltimore fishing was in progress during the first half of April. During the remainder of that month 35 boats were working for four or five nights a week, and their catch amounted to a total of about 4,400 boxes. During the first two weeks of May the fishing was very poor, but during the next three the landings greatly improved, and amounted respectively to 4,073, 5,995, and 4,320 boxes. About 48 boats then took part in the fishing. The best average was 44·5 boxes per boat per night for the week ended 29th June, when 30 boats fished on four nights. The week which produced the greatest actual take was that ended 25th May, when 5,995 boxes were landed by 48 boats as the result of five nights' operations. The prices commenced at 12s. 6d. per hundred. They subsequently reached 15s. for one week, but afterwards fell to about 8s.

At Castletownbere the season was a very poor one. The number of boats that fished never exceeded ten, and was generally three or

four. The week ended 8th June produced the greatest result, namely 350 boxes for four nights fishing by ten boats. The first price realized was 21s. per hundred. Afterwards 10s. per hundred was obtained, and coming towards the end of the season from 6s. to 9s. ruled.

At *Valencia* the fishing was in operation by 25 boats during the week ended 20th April, the catch (900 boxes) was not large, being only an average of nine boxes per boat per night. In the following month the number of boats increased, and from forty to fifty were engaged during the balance of the season up to the 22nd June, after which their number fell off. The best actual catch took place during the week ended 25th May, when 4,129 boxes were landed, being an average of 21·73 boxes per boat per night. During the following week 3,196 boxes were landed by fifty-one boats as the result of five nights fishing. This, however, only produced an average of 12·53 boxes per boat per night. At the commencement of the season 25s. to 15s. per hundred was realized. During the earlier part of May prices were from 16s. to 13s., but at the close of that month some of the fish only fetched 5s. per hundred. For the balance of the season the prices varied from 14s. to 6s. per hundred.

At *Fenit* six boats worked four nights during the week ended 20th April, their landing (48 boxes) being insignificant. It was not until the last half of May that the boats made any remunerative captures. During the week ended 18th of that month 20 boats landed 2,453 boxes for five nights' fishing, being an average of 24·53 boxes per boat per night. In the following week 2,020 boxes were landed by 18 boats. The highest average per boat per night (61·11 boxes) was for the week ended 8th June, but only 12 boats fished on three nights of that week. The prices commenced at 20s. per hundred. In May 15s., 11s. and 8s. were paid, while in the following month 12s. and 9s. per hundred were realized.

At *North Arran* the season started by four boats fishing for three nights during the week ended 20th April. Their catch was insignificant. The best week was that ended 18th May, when 907 boxes were landed by 19 boats after four nights fishing. During the following three weeks the number of boats declined to 12, and the average capture per boat per night during that time would be about 10 boxes. At the beginning the fish fetched from 15s. down to 6s. 9d. per hundred. A contract price was afterwards 7s. 6d. per hundred, which fell towards the end of the season in July to 5s.

Particulars of the fishing will be found at pp. 162-165.

The summer herring fishing shared with the spring mackerel fishing the decline on the season's returns. This decline

The Irish Summer Herring Fishery, 1907. seems to have no other general cause than the tempestuous weather which prevailed in the spring months. The falling-off was from

113,495 cwts. in 1906 to 96,274 cwts. in 1907, with a loss on the season of £14,378.

The decline was much marked at Dunmore East, Ardglass, and Kinsale. At the latter practically none but Scottish boats fish for the summer herring. At Ardglass the falling-off was partly accounted for by the weather and partly by the fact that a number of Portavogie boats worked from their home port. Portavogie, consequently showed a great increase on the previous year's landings. The strike of the dockers at Belfast caused many boats to give up fishing on the Co. Down coast before the close of the season, owing to the impossibility of getting their catches shipped in the cross-Channel steamers from Belfast.

From Kinsale and the east coast most of the fish caught were marketed fish, as were also those caught by local fishermen in mackerel nets off the west coast. In Downing's Bay (Co. Donegal) curing went on as usual, and 10,897 barrels of herrings were despatched thence to markets in Russia and Germany, &c., where they fetched the highest prices paid there.

The herrings which are caught in considerable quantities in the mackerel nets off the Kerry coast, are of specially good quality, and the Congested Districts Board sent an expert herring curer to that coast in the summer to instruct the mackerel curers in the best method of curing those herrings.

The system of telegraphic intelligence was continued during the year in connection with this fishery, and revealed the following points of interest :—

At Howth a small quantity of fish was taken at the end of May and the beginning of June, but it was not until the month of July that considerable captures were made. From seventeen to twenty-five boats were fishing that month, save in the third week of it, when forty-two boats worked on a couple of nights. The prices were high in the month of May, when the captures were small. In the last week of June the fish fetched £1 0s. 9d. a mease, but afterwards the prices

varied between 11s. and 18s. The total quantity of fish taken was 2,736 mease, and its value would be about £2,365.

The weather in June and July was mostly favourable. The quality of the herring when the fishing was at its height was good.

At Dunmore East there was a marked falling-off in the take, only 784 mease having been landed. In the week ended 4th May eighteen boats fished for one night, but during the balance of the season the number varied from six to eleven. The weather generally was rather unfavourable. The highest price (21s. a mease) was realized during the second week of June. The season closed about the third week of that month.

With regard to the experiment which was undertaken last year with the assistance of the Department to test the presence of herrings in this neighbourhood during February and March, it is interesting to note that a Scottish steam drifter fished three nights in the opening of February but made no capture. On the 21st of that month another Scottish boat fished and caught about a mease. During the week ended the 23rd February one boat fished for a night and caught $1\frac{1}{2}$ mease. Three steam and two sail drifters then arrived, and for one night's fishing only had a result of $\frac{1}{2}$ mease, the quality of the fish being poor. The steam drifters then left. During the week ended the 16th March two boats fished one night, but without success. The weather was favourable during the test, and the general results are similar to those of the previous year.

At Kinsale the fishing was light, the most successful week being that ended 25th May, when 160 mease were landed by thirteen boats as the result of five nights' fishing. The season began by the arrival of eight Scottish boats on 9th May, and closed early in June, but towards the latter half of that month some 110 mease were caught in mackerel nets. The prices throughout were from 12s. to 25s. a mease. The weather was, generally speaking, not suitable for a successful fishing.

At Killybegs 376 crans were landed, showing a satisfactory increase on last year's catch. Most of it was cured for exportation. The season opened about the middle of April, and during that month the best takes were made. The fishing started by nine boats, but after the second week of May some of these left for other centres, and only two boats pursued operations in the months of June and July. As much as 85s.

a cran was obtained for a small quantity in the third week of June. The prices, however, were very variable. During the period of the greatest captures the fish fetched only from 17s. to 18s. a cran, but 30s. and 40s. were subsequently obtained. Towards the end of May and at the beginning of June the average was only about 12s. 6d., while subsequently 85s., 70s., 45s., and 43s. were paid.

At Kincasslagh the entire fishing took place during the latter part of May. Over 200 crans were landed, most of which was cured for exportation. The prices were 53s. and 42s. 6d. a cran.

At Burtonport 20 crans were landed in the month of May, the prices varying from 80s. to 30s. a cran.

At Downing's Bay the bulk of the fish was landed during the two weeks ended 18th May. About 90 boats fished for five nights each week, their combined takes amounting to about 7,200 crans. The prices varied from 31s. to 47s. a cran. Subsequently as many as 140 boats, including steam drifters, took part in the fishing, but their total catch for two weeks ended 1st June was only about 1,600 crans. Prices varied from 84s. to 45s. 6d. a cran. The quality of the fish was good and the weather was favourable. The season closed after the first week of June.

At Buncrana the fishing took place during the last three weeks of May. During the first week 30 boats fished for five nights, landing 514 crans. In the following week 1,631 crans were landed by 70 boats as the result of five nights' fishing. The total catch for the season was over 2,600 crans. The price kept somewhere about 44s., but on one occasion went down to 10s., and on another up to 54s. a cran. The weather was exceptionally favourable.

From Portavogie a few boats fished in April. The number gradually increased to 29 in the following month. During the remainder of the season a further increase took place until in the week ended July 13th 45 boats were operating. The total amount landed was 5,234 mease. Prices were very variable. They were as low as 5s. 6d. and as high as 25s. In the first part of May and the first part of June the weather was unfavourable, but otherwise it was fair enough. The fish reached its highest quality during the latter half of June.

At Ardglass fish were first taken in the last week of April, when three boats fished for three nights. The number of boats increased in the following month, during one week of which 18 vessels fished for four nights. On occasions afterwards as many as

24 boats worked. The best week of the season was that ended 29th June, when 952 mease were landed. The prices were variable, being * mostly between 10s. and 15s. a mease. The catch amounted to 7,608 mease. The herrings did not reach their best quality until the middle of June.

At Kilkeel herrings were first taken about the 16th of April. Three boats continued fishing until the middle of the following month, when the number increased to eight, and during the week ended 15th June as many as 15 boats were fishing. The total quantity landed was about 2,691 mease, and the prices all through varied from about 10s. to 15s. At one time, however, 30s. a mease was obtained.

Particulars of the fishing will be found at pp. 166-169.

The Skipper of the steam trawler "Weasel" was fined by the Magistrates at Dungarvan Petty Sessions, on **Illegal Trawling.** the 27th July, the sum of £50 for illegal trawling. The Department were awarded £20 costs, and the vessel's net was ordered to be forfeited.

A Committee has been appointed by the Treasury to inquire into the scientific and statistical investigations now being carried on in relation to the fishing industry of the United Kingdom, and to report what work of this character is required in the interests of that industry, and by what methods or agencies it can most usefully and economically be carried out in future. The following will form the Committee :—

**Fishing
Industry Inquiry.**

Mr. H. J. Tennant, M.P. (chairman).

Mr C. H. W. Wilson, M.P.

Sir Reginald Macleod, K.C.B.

Mr. N. W. Helme, M.P.

Mr. Archibald Williamson, M.P.

Mr. P. Chalmers Mitchell, D.Sc., F.R.S.

Mr. J. Stanley Gardiner.

Rev. W. S. Green, C.B.

Mr. L. J. Hewby.

Mr. R. H. Rew.

Mr. A. T. Masterman, D.Sc., of the Board of Agriculture and Fisheries, will act as secretary to the Committee.

The Report (Cd. 3775-1907) on the prices in Ireland of Irish live stock and other produce for the period ended **Prices, in Ireland, of 30th June, 1907**, has just been issued by the **Irish Produce, 1906-7. Department.** The Tables which accompany the Report show the average prices for the twenty years, 1887-1906, while the quarterly average prices during 1906, and for the first half of the present year, are also set forth. The prices of the principal commodities in the year 1906, and in the quarter ended 30th June, 1907, are as follows :—

—					Year 1906.	June Quarter, 1907.
					£ s. d.	£ s. d.
Wheat,	per cwt.				0 6 4½	—
Oats, White,	"				0 6 1½	0 6 10½
" Black,	"				0 5 9½	0 6 6½
Barley,	"				0 7 1	—
Potatoes,	"				0 2 10½	0 4 6½
Flax,	per 14 lbs.				0 7 0½	—
One-year old Stores, ...	per head				6 15 5	6 11 7
Two-year olds,	"				9 7 10	9 7 3
Three-year olds,	"				12 2 6	12 14 6
Springers,	"				13 4 8	13 7 11
Fat Bullocks,	"				16 18 10	18 10 5
" Heifers,	"				14 17 2	15 19 8
" Cows,	"				14 18 11	14 16 8
" Wethers,	"				2 10 9	2 16 2
" Ewes,	"				2 7 4	2 10 7

The Report contains what is in effect a history of Irish Agricultural Prices, but it is much too detailed to be reproduced here. Summing up, however, the changes which have taken place since 1840, four periods may be distinguished: first the period from 1840 to 1852, in which, excepting wheat, prices were low and fluctuated considerably. Second, from 1853 to 1865—the period of rising prices, and in the cereals, of high prices. Third, from 1865 to 1884—the period of high prices generally; in these years, and especially from 1871 to 1878, there was a remarkable concurrence of high prices amongst the different agricultural commodities. After 1878 considerable fluctuations occurred, and the level of prices fell somewhat lower until 1884. Fourth, there is the period from 1884 to 1907. This period began with the great fall in prices from 1884 to 1887. From 1887 to 1896 prices showed considerable fluctuations, and in the years 1892 to 1894 the level of prices

was in several commodities lower than from 1885 to 1887. During the past ten years, 1897 to 1906, the general level of prices has to some extent improved, and there has been a more general stability in prices than in the ten years preceding.

The Annual General Abstracts of the Agricultural Statistics for Ireland have just been issued by the Department of Agriculture and Technical Instruction for Ireland (Cd. 3769-1907). The following summary shows the changes in 1907 as compared with 1906:—

	Increase.	Decrease.
Corn Crops,	—	14,392
Green Crops,	—	30,772
Flax,	4,466	—
Fruit,	831	—
Hay,	—	48,753
Pasture and Grazed Mountain,	124,350	—
Woods and Plantations,	1,945	—
Barren Mountain, Turf Bog,	—	37,675
&c.,	—	37,675

The total net decrease in the area under corn and green crops and flax in Ireland in 1907 as compared with 1906, amounts to 40,698 acres, or 1·7 per cent. of the total area under these crops. This decrease has taken place chiefly in Ulster—the province which has the largest tillage area—and in Connaught—the province having the smallest tillage area. The decrease in Ulster amounts to 25,139 acres, or 2·6 per cent. of the area under corn and green crops and flax in that province; the decrease in Connaught to 11,296 acres or 3·9 per cent. In Leinster and in Munster the net change in crops is small. In Leinster there is an increase of 167 acres in corn crops and a decrease of 2,631 acres in green crops, giving a net decrease of 2,464 acres in corn and green crops. In Munster there is an increase of 2,825 acres in corn crops and a decrease of 4,624 acres in green crops, giving a net decrease of 1,799 acres. The area under flax in Ulster shows an increase of 4,426 acres.

It is plain that the wet unfavourable season, especially in the North and West, has affected adversely the area under tillage, while the shortage of grass in many districts has increased the area grazed at the expense of the area of hay.

The following summary shows the acreage under the several corn crops in 1906 and 1907 :—

—	1906.	1907.	Increase.	Decrease.
	Acres.	Acres.	Acres.	Acres.
Wheat,	43,880	38,151	—	5,729
Oats,	1,076,310	1,075,373	—	937
Barley and Bere,	176,544	170,432	—	6,112
Rye,	10,343	8,838	—	1,505
Beans,	1,961	1,833	—	128
Pense,	305	334	19	—
Total,	1,309,343	1,294,951	19	14,411
Net Decrease, ... ..	...	...	14,392 Acres.	

The following summary shows the area of green crops and flax in 1906 and 1907, and the increase or decrease in the several crops :—

—	1906.	1907.	Increase.	Decrease.
	Acres.	Acres.	Acres.	Acres.
Potatoes,	616,107	590,973	—	25,134
Turnips,	278,367	275,129	—	3,238
Mangels,	67,200	67,086	—	114
Beet Root,	123	30	—	93
Carrots,	1,720	1,721	1	—
Parsnips,	729	562	—	167
Cabbage,	40,838	38,250	—	2,588
Vetches,	2,620	1,795	—	825
Rape,	3,572	3,365	—	207
Other Green Crops,	22,420	24,013	1,593	—
Flax,	55,189	59,655	4,466	—
Total,	1,088,885	1,062,579	6,080	32,366
Net Decrease, ... ..	...	...	26,306 Acres.	

There is an increase in 1907 in cattle, sheep, pigs, and poultry.

Live Stock.

There is a decrease in horses, mules, asses and goats. The following are the changes in the numbers of live stock in 1907, as compared with 1906 :—

—	1906.	1907.	Increase.	Decrease.
Horses,	604,413	596,024	—	8,389
Mules and Jennets,	30,967	29,809	—	1,158
Asses,	243,660	238,387	—	5,282
Cattle,	4,638,924	4,674,834	35,910	—
Sheep,	3,714,832	3,815,995	101,163	—
Pigs,	1,244,193	1,316,729	72,536	—
Goats,	267,342	247,385	—	19,957
Poultry,	18,976,798	24,318,762	5,341,954	—

Several cases in which serious accidents have occurred in England

Farm Machinery Accidents.

owing to the insufficient fencing of farm machinery have been brought to the notice of the English Board of Agriculture and Fisheries.

That Board has, therefore, issued a circular and leaflet calling attention to the Threshing Machines Act, 1878, and the Chaff-cutting Machines (Accidents) Act, 1897. The first-named Act does not apply to Ireland, but, as the second Act does, the attention of farmers is called to its chief provisions, which are set out below.

The Chaff-cutting Machines (Accidents) Act, 1897, requires that, so far as is reasonably practicable and consistent with the due and efficient working of the machine, the feeding mouth or box of every chaff-cutting machine worked by motive power other than manual labour shall be so constructed, or fitted with such apparatus or contrivance, as to prevent the hand or arm of the person feeding the machine from being drawn between the rollers to the knives, and that the fly-wheel and knives shall be kept sufficiently and securely fenced at all times during working.

A penalty of £5 may be imposed for non-compliance with these Acts, and provision is made for enabling constables to enter premises for the purpose of seeing whether the Acts are complied with.

With regard to other machinery used in farming, there are no statutory provisions of general application. In some cases, i.e. where the premises on which the machinery is used constitute a factory within the meaning of the Factory Act by reason of articles being

manufactured there by way of trade, &c., the provisions of that Act as to the fencing of machinery, &c., will apply ; ordinarily, however, farm machinery, being used solely for estate purposes, or ordinary farming, and not in the manufacture or adaptation of any article for sale, does not come under the provisions of the Factory Act. The importance, however, of securing the safety of the men working the machines, and also of safe-guarding other persons against the risk of accident, ought not to be overlooked, and farmers are urged to take special precautions in this direction. All shafting, whether vertical, horizontal, or oblique, which is not more than seven feet from the ground or floor, should be fenced by metal or wooden coverings. This should also be done with belting.

Gearing and cog-wheels should also be covered with a wire cage or some similar protection, while fly-wheels, water-wheels, and other parts of the machinery should be securely fenced.

Boilers used for generating steam should be thoroughly examined by an insurance company's engineer or other competent person at least once in every fourteen months.

The third* of this season's Competitions took place on the 13th August. One hundred and twenty-eight

Surprise Butter creameries have been entered for the competitions this year. Owing to the large number of entries the exhibits were judged in two

sections. The judges for each section were two in number, being in the case of Section I. representative butter merchants of Dorsetshire and Glasgow, and in the case of Section II. representative butter merchants of Chester and Cork. Prizes were awarded to the undermentioned competitors :—*Section I.*—Beltrim Co-operative Agricultural and Dairy Society, Gortin, Co. Tyrone ; Drumholm Co-operative Agricultural and Dairy Society, Bridgetown, Co. Donegal ; Fivemiletown and Brookeboro' Co-operative Agricultural and Dairy Society, Fivemiletown, Co. Tyrone ; Belleek Co-operative Agricultural and Dairy Society, Belleek, Co. Fermanagh ; Clones Co-operative Agricultural and Dairy Society, Clones, Co. Monaghan ; Ballinamore Co-operative Agricultural and Dairy Society, Ballinamore, Co. Leitrim ; Crossmaglen Co-operative Agricultural and Dairy Society, Crossmaglen, Co. Armagh ; Doons Co-operative Agricultural and Dairy Society, Cookstown, Co. Tyrone ; Granard Co-operative Agricultural and Dairy

* See Journal, Vol. VII., No. 4, p. 779.

Society, Granard, Co. Longford. *Section II.*—Kinlough Co-operative Agricultural and Dairy Society, Kinlough, Co. Leitrim; Scottish Co-operative Wholesale Society, Enniskillen; Irvinestown Co-operative Agricultural and Dairy Society, Irvinestown, Co. Fermanagh; Kiltoghert Co-operative Agricultural and Dairy Society, Carrick-on-Shannon; Newmarket Creamery (Newmarket Dairy Company), Newmarket, Co. Cork; Greencastle Co-operative Agricultural and Dairy Society, Newtownstewart, Co. Tyrone; Springfield Co-operative Agricultural and Dairy Society, Enniskillen.

A special additional prize of 10s. was awarded in each instance to the dairymaid or actual maker of an exhibit obtaining a first-class prize.

The fourth of this season's competitions took place on the 10th October. One hundred and twenty-eight creameries have been entered for the competitions this year. The judges were two in number, being representative butter merchants of Dublin and Liverpool. Prizes were awarded to the undermentioned competitors :—Springfield Co-operative Agricultural and Dairy Society, Enniskillen; Derrygonnelly Co-operative Dairy Society, Derrygonnelly; Drumholm Co-operative Agricultural and Dairy Society, Bridgetown; Finn Valley Co-operative Agricultural and Dairy Society, Killygordon; Ahoghill Co-operative Agricultural and Dairy Society, Ballymena; Clones Co-operative Agricultural and Dairy Society, Clones.

A special additional prize of 10s. was awarded in each instance to the dairymaid or actual maker of an exhibit obtaining a first-class prize.

According to a recent Consular Report issued by the Foreign Office (Cd. 3,283-123-1907), the value of the various

Trade of Denmark products which were imported in 1906 from
in 1906. abroad into Denmark for home consumption
amounted to £31,092,778. The value of the

export of Danish goods for abroad for the same period is estimated at £21,825,111, a difference of £9,267,667 between import and export. The following summary shows the figures of the export and import trade during the last ten years :—

[TABLE.

YEAR.	Value.		Difference.
	Imports.	Exports.	
	£	£	£
1906,	31,092,778	21,825,111	9,267,667
1905,	26,805,555	21,716,666	5,088,889
1904,	25,872,222	19,922,222	5,950,000
1903,	24,655,555	19,566,666	5,088,889
1902,	24,083,333	17,683,333	6,400,000
1901,	22,500,000	16,144,444	6,355,556
1900,	23,122,222	15,600,000	7,522,222
1899,	22,211,111	15,005,555	7,205,556
1898,	20,405,555	13,250,000	7,155,555
1897,	18,105,555	13,527,777	4,577,778

As will be observed from the foregoing, the value of imported goods in 1905 exceeded that of exported goods by £5,088,889, whereas in 1906 the surplus value of imported goods is £9,267,667 higher than the estimated value of exported goods—an increase of £4,178,778. This represents a considerable rise, and the difference in value between exported and imported goods has never been so marked as in 1906; the importation values also constitute a record increase. But it must be borne in mind that these figures cannot be expected to contribute sufficient detailed particulars to furnish an absolutely accurate idea of the trade balance of Denmark, as compared with that of other foreign countries. Many points occur about which it is practically impossible to obtain authentic information—for instance, the Danish carrying trade, the profit on the transit business, that from bank and exchange business, the amount of money left by travellers and tourists, &c.—from all which the country's actual position as creditor or debtor to foreign countries may be deduced.

The increase in the value of the imports in 1906 was wholly due to a development in import, and must be attributed to the permanently high state of the market in 1906. In nearly all the great industrial centres there was a large rise in production, both in 1905 and 1906, but Denmark at first took no part in this movement, and this explains the apparent stagnation of various articles in 1905, and the consequent large increase witnessed in 1906.

The value of the export of home products was in 1906 higher by £100,000 than in 1905. Many of the articles,

Exports. as will be seen from the accompanying table, underwent changes ; the fluctuations, however, almost balance one another in the collective result.

TABLE showing Exports of Principal Home Products during the
. Years 1906-1905.

YEAR.	Value.		Increase or Decrease.
	1906.	1905.	
	£	£	£
Bacon, salted, ...	4,560,000	4,400,000	+ 160,000
Butter, ...	8,988,000	8,644,000	+ 344,000
Eggs, ...	1,416,000	1,377,000	+ 39,000
Milk and Cream, ...	261,000	155,000	+ 106,000
Skin and Hides, ...	700,000	672,000	+ 28,000
Oils, ...	127,700	111,000	+ 16,700
Old Iron and other metals,	111,000	94,400	+ 16,600
Machinery, &c., ...	305,500	272,200	+ 33,300
Horses, ...	966,600	1,061,100	— 94,500
Cattle, ...	1,366,600	1,544,400	— 177,800
Meat, fresh, ...	372,200	494,400	— 122,200
Barley, unground, ...	261,000	316,600	— 55,600
Ships, Motor Boats—			
Newly built, ...	94,400	133,300	— 38,900
Not new, ...	50,000	327,700	— 277,700
Total, ...	19,580,000	19,603,100	— 23,100

With regard to the export of Danish agricultural products in 1906, it may be mentioned that although the prices for such commodities as butter, bacon and eggs rose, the quantity exported to the United Kingdom did not increase to any appreciable extent. For these three articles, together with milk and cream, the total rise in value is £649,000. On the other hand, there is a conspicuous decline in the export value of horses, as well as live and slaughtered cattle, the market for which is entirely, or, at all events, in great part, in Germany.

It is true that, in spite of the newly raised tariff duty, the prices obtained were better than formerly ; but, on the other hand, the quantity exported has lessened considerably. The value of exported barley has declined by about £55,000, whilst the export of unprepared hides shows an advance of £28,000.

The export of Danish butter in 1906 was 1,588,000 cwts., which was somewhat less than in 1905, when it was 1,597,500 cwts., but considerably more than the average for 1901-05, which was 1,512,500 cwts. The great bulk of the butter was sent to the United Kingdom. The figures being 1,525,000 cwts.

The exports of Danish eggs amounted to 19,760,000 score, which were less than in 1905, when the exports were 20,730,000 score; but the prices of eggs were high, so that the value of the exports exceeded that of 1905 by £39,000. The total value of the export was £1,416,000. Besides, about 2,500,000 score of Russian eggs were conveyed in transit *via* Copenhagen to the United Kingdom and about 2,000,000 score of foreign eggs were imported into and consumed at Copenhagen.

The number of persons emigrating from Denmark has, in spite of good times, being increasing during recent years, as will be seen from the following list, which shows the number of Danish emigrants who have left Copenhagen, according to contracts controlled by the Copenhagen police :—

YEAR.	Number.		
	Males.	Females.	Total.
1896,	1,602	1,274	2,876
1897,	1,285	975	2,260
1898,	1,338	1,002	2,340
1899,	1,627	1,172	2,799
1900,	2,120	1,450	3,570
1901,	2,857	1,800	4,657
1902,	4,296	2,527	6,823
1903,	5,305	2,909	8,214
1904,	5,622	3,412	9,034
1905,	5,161	2,890	8,051
1906,	5,290	3,083	8,373

The Foreign Office Report No. 618 Miscellaneous Series, points out that theoretical instruction in a knowledge of

Wood-working materials, construction, drawing, &c., is given
Schools in Germany. to carpenters and joiners in Germany, principally in the building trades' schools. The pupils in these schools are, as a rule, engaged in practical work during the summer and in theoretical school-work during the winter.

Almost all industrial and art trades' schools and the larger continuation schools contain special classes for carpenters, furniture makers, turners and other wood-workers, but in these classes, as well as in the schools organised by the Woodworkers' Guild, much more attention is devoted to drawing than to actual practical instruction in the different processes of wood-working.

The first independent special technical schools for wood-workers were the wood-carving schools established in the great wooded districts of Bavaria. As far back as the year 1838 the attention of the Bavarian Government was drawn to the fact that the wood-carving industries in the districts of Oberammergau and Berchtesgaden, which had flourished for several centuries, were in a languishing condition. This led to the foundation of the first special technical school for wood-working at Berchtesgaden, which was followed by a number of schools founded on the same pattern, but with a more extensive curriculum. The number of schools existing at the present day is given in the following table :—

School.	State.	Remarks.
Berchtesgaden, ...	Bavaria, ...	Founded in 1840 as a drawing school for the wood-carving industry ; a department for practical wood-carving added in 1858 ; re-organised in 1866.
Bischofsheim, ...	Bavaria, ...	Founded in 1853 at Poppenhausen, removed in 1861.
Partenkirchen, ...	Bavaria, ...	Founded in 1869 ; a division for artistic carpentry work was added in 1899.
Oberammergau, ...	Bavaria, ...	Founded in 1834 as a drawing school for the wood-working industry ; wood-carving courses were added in 1879.
Neuhammer, ...	Bavaria, ...	Founded in 1884.
Kützing, ...	Bavaria, ...	Founded in 1897.
Fürth, ...	Bavaria, ...	Founded for the promotion of the carpentering, wood-carving, and wood-turning industries of the surrounding district.
Furtwangen, ...	Baden, ...	Founded for the promotion of the wood-carving and carpentry industries of the Black Forest.
Leipsic, ...	Saxony, ...	Wood-carving and wood-turning.
Warmbrunn, ...	Prussia, ...	Wood-carving.
Berlin, ...	Prussia, ...	Carpentry work, furniture making.
Flensburg, ...	Prussia, ...	Carpentry work, furniture making and wood-carving ; attached to the art industrial school.

As the school at Berchtesgaden was the first of its kind, the manner and details of its development are of especial interest.

It was founded in 1840 as a drawing school for the wood-carving industry of the district. In 1858 a department for practical wood-carving was added,

**The School at
Berchtesgaden.**

and in 1868 the school was given a complete curriculum and organisation, the former being afterwards revised in 1883.

According to the organisation plan of 1868 instruction in drawing was given to two classes with two divisions each, followed by modelling and carving from drawings and models. At the same time instruction was given in the principal subjects of the elementary schools, reading, writing, and arithmetic. A workshop was connected with the school in which carving work for sale purposes was carried out by the pupils; the necessary materials were provided by the master at his own expense and risk, in addition to the wages paid to the pupils for the work. Instruction was free and no pupil was allowed to remain longer than four years in the workshop. In 1884 an exhibition room was added, open from June to September, in which past and present pupils exhibited specimens of their work.

Pupils of the third and fourth year are, at the present time, allowed to execute orders in carving work during school hours and under the supervision of a master. A school committee consisting of twelve persons is principally concerned with the task of finding remunerative work for the poorer pupils.

The duration of the school or apprentice period is four years, and an evening and Sunday school are connected with the day school. Two drawing schools at Ramsau and Schellenberg provide preparatory drawing instruction for intending pupils.

The school is under Government supervision through the intermediary of the district commissioner, and is supported by a school fund and grants of money from the town, district and Government.

The plans of instruction and the details of the subjects are given in the following tables:—

Plans of instruction and details of the subjects.	Day school:—Preparatory course for pupils at elementary schools.—Division I. Practice in the drawing of straight and curved lines and simple geometrical figures. Division II. Drawing from charts.
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FINISHING Course for Pupils of the School.

Subjects of Instruction.	Details of Subjects of Instruction.
A. Linear drawing ..	Exercises in drawing simple geometrical patterns, Vitruvian scrolls, interlaced band ornamentations, networks, orders of columns, &c., using water colours in order to obtain skill in the use of the T-square, set-squares, compasses and drawing pen. Advanced students are first given exercises in sketching furniture mouldings, &c., from plaster casts, partially enlarging the same; and afterwards in drawing from copies taken from industrial art journals.
B. Ornamental drawing ..	<p>Division I.—Exercises in copying as exactly as possible the contours of simple plastic leaf and ornamental forms from plaster of Paris copies.</p> <p>Division II.—Continuation of the studies from plaster of Paris relief copies, including light and shade effects.</p> <p>Division III.—Drawing decorative ornaments in the different styles, developed as far as possible in respect of light and shade effects, from plaster of Paris models. (Materials: lead pencil and here and there the brush.)</p>
C. Modelling	<p>Division I.—Introductory work consisting in copying simple plaster of Paris models, for example, leaf forms, rosettes, palm leaves, &c.</p> <p>Division II.—Exercises in copying simple typical ornaments and architectural details with partial enlargement.</p> <p>Division III.—Copying larger and more highly decorated models in different styles from plaster casts, photographs, and drawings, at the same time altering the dimensions given. (Materials: clay and wax.)</p>
D. Carving	<p>Division I.—Introductory work, consisting in copying leaves, ornamental mouldings, and simple ornamental parts from wood models. Material: limewood.)</p> <p>Division II.—Continuation of the exercises from more highly decorated plaster of Paris models. Advanced pupils occasionally make simple articles of practical utility.</p> <p>Division III.—Copying larger ornaments with adjuncts partially consisting of figure ornamentation, capitals, animal pieces, &c., from plaster casts, and also making articles which can be used industrially, for example, frames, caskets, money boxes, shooting souvenirs, &c.</p>

As showing the utility of the school, it may be pointed out that in the opinion of the Director of the school and of persons in the surrounding district the local wood-carving industry would most probably have disappeared but for the aid and stimulus afforded and imparted by the school. The workmen of the district are able and industrious, but wanting in initiative and originality, and, without the school as a rallying point of defence, would have succumbed to competition from without.

Determined efforts have several times been made by travellers from Switzerland to introduce their wares, but without success. On the contrary, large quantities of Berchtesgaden carved wood wares are sold not only in Germany but are also exported abroad.

According to a recent Consular report (Cd. 3283-150-1907) the Hamburg deep-sea fishing fleet consisted at the end of the year 1906 of 145 vessels of together 4,535 net register tons, and amongst these there were 20 steam trawlers of together 834 tons register.

The Hamburg Fishing Industry. In the recently published annual report of the German Fishery Association it is stated that, whilst 20 years ago almost only coastal fishing was carried on in this country, German deep-sea fishing has since that time largely developed. The German fishing fleet has lately increased so considerably that there is at present stated to be a scarcity of fishermen for manning the vessels. Much attention is paid to improving the type and seaworthiness of fishing vessels. In another publication of the association some remarks were recently made concerning the successful utilisation of auxiliary motors by fishing smacks. After a long series of experiments the association chartered in 1903 three different types of fishing vessels and fitted them with petroleum motors of the Danish "Alpha" model, respectively of 8, 12 and 16 horse-power. The experience obtained with these vessels is considered to have demonstrated the entire suitability of the Danish petroleum motor for German fishing craft, and the possibility of employing these motors in a profitable manner, as also the practicability of adopting winches, &c., suitable for the manipulation in conjunction with these motors of the other trawl. It was furthermore found that motors of 12 and of 16 horse-power are sufficiently powerful to drag this trawl independently of sails.

It may be observed here that, whilst a regular school for fishermen has been established by the German Fishery Association at Geestemünde, courses of instruction in fishery matters are likewise held in other ports, viz., at Memel, Pillau, Colberg, Stralsund, &c. It is said that the building of a training ship for fishermen is contemplated.

The project of establishing a large fish market at the Hamburg outport of Cuxhaven is about to be carried into effect at the cost of about £35,000, which has been set apart for the purpose by the Hamburg Government. This undertaking, whilst giving a further impulse to the development of the fishing industry of the Lower Elbe, should also be of much advantage to the import trade of fish by German and foreign vessels; as it is intended to arrange for the frequent and rapid transport of the fish brought to the Cuxhaven market to the interior of Germany.

According to the latest German official returns published on the subject, which date from the year 1902, the total value of the imports to Germany of all kinds of fishery products, which included cured and fresh herrings and other sea fish, dried codfish, crabs, oysters and other shell-fish, as well as preserved fish, was £5,275,000 for the year in question. Of this amount £650,000 worth of fish were imported exclusively by German North Sea fishing vessels, whilst the total value imported by foreign fishing vessels was respectively :—By British vessels, £2,575,000 ; by Dutch, £1,125,000 ; and by French fishing vessels, £225,000.

STATISTICAL TABLES

FISHERY STATISTICS—

STATEMENT of the Total QUANTITY and VALUE of the FISH returned
compared with the

—	North Coast.				East Coast.			
	1907.		1906.		1907.		1906.	
	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.
	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
Brill, . . . . .	.	.	.	.	10	18	12	20
Soles,	9	36	7	19	104	508	59	167
Turbot,	2	6	5	10	14	59	22	96
Total Prime Fish,	11	42	12	29	128	585	93	283
Cod,	2	3	.	.	834	809	445	395
Conger Eel,	1	1	.	.	730	444	293	203
Haddock,	120	30	88	30	468	486	313	389
Hake, . . . . .	.	.	.	.	570	661	398	656
Herrings, . . . . .	.	.	.	.	20,117	6,142	18,319	6,363
Ling,	3	1	.	.	600	344	580	484
Mackerel,	1	1	12	8	786	141	832	201
Plaice,	138	117	151	119	1,881	2,249	582	592
Ray or Skate, . . . . .	.	.	.	.	737	337	292	174
Sprats, . . . . .	.	.	.	.	.	.	.	.
Whiting,	10	5	.	.	1,060	890	486	419
All other except Shell Fish,	235	101	302	58	969	570	454	1,457
Total,	519	301	555	244	23,880	13,648	23,087	11,605
SHELL FISH :—	No.		No.		No.		No.	
Crabs,	29,281	67	10,512	25	98,002	387	33,139	136
Lobsters,	35,551	962	9,308	248	5,117	172	9,685	365
Mussels,	Cwts.	.	Cwts.	12	Cwts.	4	Cwts.	3
			960		170		120	
Oysters,	No.	.	No.	.	No.	.	No.	.
Other Shell Fish,	Cwts.	23	Cwts.	.	Cwts.	73	Cwts.	178
	154		.		315		379	
Total, . . . . .	.	1,052	.	285	.	696	.	677
Total Value of Fish landed, . . . . .	.	1,353	.	529	.	14,284	.	12,282

NOTE.—The above figures are subject to

IRELAND.

as landed on the IRISH COASTS during the month of July, 1907, as corresponding period in 1906.

South Coast.				West Coast.				Total.			
1907.		1906.		1907.		1906.		1907.		1906.	
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
1	2	2	7	42	80	47	91	53	100	61	119
48	207	43	141	141	488	93	316	302	1,239	202	643
10	46	6	20	16	57	33	151	42	168	66	277
59	255	51	168	199	625	173	558	397	1,507	329	1,038
95	64	405	284	69	24	.	.	1,000	900	850	679
52	15	156	98	2	1	.	.	785	461	449	301
199	125	315	152	561	243	116	56	1,348	854	832	626
46	47	71	70	.	.	162	105	616	698	631	828
293	91	427	149	262	147	206	87	20,672	6,380	18,952	6,591
134	80	276	164	36	17	16	13	773	442	872	661
18,968	4,338	13,596	2,680	22,259	4,651	15,151	3,139	42,014	9,131	29,591	6,028
143	187	163	172	500	452	286	270	2,660	3,005	1,181	1,153
13	5	2	1	12	3	10	3	762	345	304	178
67	7	.	.	.	.	.	.	67	7	.	.
30	19	254	85	820	240	196	72	1,920	1,154	936	576
549	221	583	273	1,049	452	792	300	2,802	1,344	2,131	2,088
20,648	5,454	16,299	4,296	25,769	6,855	17,107	4,602	75,816	26,258	57,058	20,747
No.		No.		No.		No.		No.		No.	
5,463	40	2,855	20	960	9	696	6	133,696	503	47,202	187
12,787	393	10,505	329	62,618	1,794	20,379	668	116,073	3,321	49,877	1,610
Cwts.	.	Cwts.	.	Cwts.	.	Cwts.	16	Cwts.	170	Cwts.	1,096
No.	.	No.	.	No.	.	No.	.	No.	.	No.	.
Cwts.	160	Cwts.	190	Cwts.	662	Cwts.	737	Cwts.	1,291	Cwts.	1,306
.	448	.	368	.	1,908	.	797	.	4,044	.	2,127
.	5,902	.	4,664	.	8,763	.	5,399	.	30,802	.	22,874

correction in Annual Returns.

FISHERY STATISTICS—

STATEMENT of the Total QUANTITY and VALUE of the FISH returned
compared with the

	North Coast.				East Coast.			
	1907.		1906.		1907.		1906.	
	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.
	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
Brill, . . . . .	.	.	.	.	7	11	33	47
Soles,	29	166	17	67	120	450	113	367
Turbot,	15	50	8	20	15	51	35	107
Total Prime Fish, . . .	44	216	25	87	142	512	181	571
Cod, . . . . .	.	.	.	.	722	301	640	584
Conger Eel, . . . . .	.	.	.	.	573	232	312	229
Haddock,	109	57	83	44	426	251	332	408
Hake, . . . . .	.	.	.	.	407	368	470	723
Herrings,	99	64	68	19	21,189	5,408	20,302	5,547
Ling, . . . . .	.	.	.	.	538	256	621	554
Mackerel,	22	7	34	19	2,482	589	1,724	383
Plaice,	289	317	315	213	1,831	1,789	680	672
Ray or Skate,	8	2	.	.	697	240	419	237
Sprats, . . . . .	.	.	.	.	.	.	.	.
Whiting,	20	12	13	8	667	385	404	375
All other except Shell Fish, .	447	183	234	226	1,538	479	3,371	1,595
Total,	1,046	869	772	616	31,212	10,810	29,336	11,878
SHELL FISH :—	No.		No.		No.		No.	
Crabs,	21,268	49	16,146	52	27,198	94	35,435	197
Lobsters,	20,797	575	17,674	474	13,771	486	15,122	541
Mussels,	Cwts.	.	Cwts.	.	Cwts.	12	Cwts.	9
Oysters,	No.	.	No.	.	No.	.	No.	.
Other Shell Fish,	Cwts.	76	Cwts.	.	Cwts.	369	Cwts.	106
Total, . . . . .	.	635	.	526	.	723	.	853
Total Value of Fish landed, .	.	1,494	.	1,142	.	11,533	.	12,731

NOTE.—The above figures are subject to

IRELAND.

as landed on the IRISH COASTS during the month of August, 1907, as corresponding period in 1906.

South Coast.				West Coast.				Total.			
1907.		1906.		1907.		1906.		1907.		1906.	
Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.
Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
2	3	5	10	51	62	51	103	60	76	89	160
64	300	40	134	126	430	54	219	339	1,346	224	787
21	80	4	14	52	193	17	55	103	374	64	246
87	383	49	158	229	685	122	377	502	1,796	377	1,193
37	17	8	9	.	.	.	.	759	318	648	593
61	28	32	13	18	7	.	.	655	267	344	242
82	66	78	41	510	243	115	46	1,127	617	608	539
22	9	56	61	31	13	12	11	460	390	538	795
491	161	3,032	759	488	212	2,517	888	22,267	5,845	25,919	7,213
29	12	16	18	16	6	.	.	583	274	637	572
8,191	1,801	2,961	694	1,702	632	942	368	12,397	3,029	5,661	1,464
213	260	198	197	453	398	263	262	2,796	2,764	1,436	1,344
.	.	29	12	8	3	3	1	713	245	451	250
312	67	224	32	.	.	.	.	312	67	224	32
44	27	162	59	120	70	651	150	851	495	1,230	592
1,092	528	490	284	912	468	1,462	603	3,989	1,658	5,457	2,708
10,684	3,359	7,335	2,337	4,487	2,737	6,087	2,706	47,411	17,765	43,530	17,537
No. 7,686	109	No. 1,714	12	No. 714	6	No. 816	7	No. 56,866	258	No. 54,111	268
9,172	298	5,339	180	33,958	1,090	13,953	383	77,728	2,444	52,088	1,578
Cwts. .	.	Cwts. 185	11	Cwts. .	.	Cwts. 16	1	Cwts. 326	12	Cwts. 509	21
No. .	.	No. .	.	No. .	.	No. .	.	No. .	.	No. .	.
Cwts. 210	21	Cwts. 240	24	Cwts. 761	133	Cwts. 622	109	Cwts. 1,416	296	Cwts. 1,115	239
.	423	.	227	.	1,229	.	500	.	3,010	.	2,106
.	3,782	.	2,564	.	3,966	.	3,208	.	20,775	.	19,643

correction in Annual Returns.

FISHERY STATISTICS—

STATEMENT of the TOTAL QUANTITY and VALUE of the FISH returned as compared with the

	North Coast.				East Coast.			
	1907.		1906.		1907.		1906.	
	Quantity.	Value.	Quantity.	Value	Quantity.	Value.	Quantity.	Value.
	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
Brill, . . . . .	.	.	.	.	7	12	27	35
Soles,	4	16	5	23	119	506	101	324
Turbot,	1	1	5	14	19	67	41	168
Total Prime Fish,	5	17	10	37	145	535	169	527
Cod,	2	2	.	.	604	696	581	522
Conger Eel,	19	7	8	4	667	412	388	292
Haddock,	39	27	28	21	554	700	362	449
Hake, . . . . .	.	.	.	.	490	779	432	702
Herrings,	2,725	1,680	2,816	1,743	11,414	3,164	6,294	1,636
Ling, . . . . .	.	.	.	.	620	407	570	476
Mackerel,	112	40	43	13	1,757	347	1,019	249
Plaice,	74	62	167	124	1,451	1,742	741	766
Ray or Skate,	2	1	.	.	608	223	533	326
Sprats, . . . . .	.	.	.	.	.	.	.	.
Whiting,	29	17	.	.	677	762	567	515
All other except Shell Fish,	397	187	85	30	802	363	2,962	1,477
Total,	3,404	2,040	3,147	1,972	19,789	10,182	14,518	7,927
SHELL FISH :	No.		No.		No.		No.	
Crabs,	15,291	33	11,068	23	27,226	104	35,922	195
Lobsters,	18,718	486	12,011	313	6,688	242	11,882	389
Mussels,	Cwts.		Cwts.		Cwts.		Cwts.	
	.	.	924	12	300	16	180	6
Oysters,	No.		No.		No.		No.	
	.	.	764	19	9,198	14	1,419	3
Other Shell Fish,	Cwts.		Cwts.		Cwts.		Cwts.	
	28	4	.	.	66	45	366	159
Total, . . . . .	.	523	.	367	.	420	.	752
Total Value of Fish landed, . . . . .	.	2,563	.	2,339	.	10,602	.	8,679

NOTE.—The above figures are subject to
 * Includes 15,576 lobsters, value £454, landed at

IRELAND.

landed on the IRISH COASTS during the Month of **September**, 1907, as corresponding period in 1906.

South Coast.				West Coast.				Total.			
1907.		1906.		1907.		1906.		1907.		1906.	
Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.
Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
6	11	8	13	27	42	30	60	40	65	65	108
51	225	44	156	121	412	44	166	295	1,159	194	669
10	37	13	42	67	222	29	114	97	327	88	338
67	273	65	211	215	676	103	340	432	1,551	347	1,115
11	9	10	3	32	13	.	.	649	722	591	525
34	10	52	19	20	7	2	1	740	436	450	316
76	50	16	9	337	167	53	31	1,006	944	459	510
47	33	169	183	58	21	49	18	595	833	650	903
2,049	662	10,550	1,792	8,337	3,799	14,926	4,858	24,525	9,305	34,586	10,029
25	8	34	26	11	4	.	.	656	419	604	502
2,687	743	1,863	363	832	262	1,091	404	5,388	1,392	4,016	1,079
228	279	223	227	305	271	230	191	2,058	2,354	1,351	1,298
.	.	42	6	39	16	41	13	649	240	616	345
57	14	476	53	760	106	.	.	817	120	476	53
41	21	273	78	313	115	156	60	1,060	915	996	653
1,306	480	786	285	1,151	508	1,580	598	3,656	1,538	5,413	2,390
6,628	2,582	14,559	3,255	12,410	5,965	18,231	6,564	42,231	20,769	60,555	19,718
No. 2,116	42	No. 867	8	No. 868	7	No. 671	6	No. 45,501	186	No. 48,518	232
21,892*	663	2,536	130	23,587	943	8,383	275	75,885	2,334	34,812	1,077
Cwts. .	.	Cwts. 140	9	Cwts. 48	4	Cwts. 132	11	Cwts. 348	19	Cwts. 1,376	38
No. 3,869	16	No. 2,079	8	No. .	.	No. .	.	No. 13,167	30	No. 4,262	30
Cwts. 374	39	Cwts. 298	30	Cwts. 533	110	Cwts. 786	122	Cwts. 996	198	Cwts. 1,400	311
.	760	.	155	.	1,064	.	414	.	2,767	.	1,688
.	3,342	.	3,410	.	7,029	.	6,978	.	23,536	.	21,406

correction in Annual Returns.
Garnish and Dursley during June, July, and August.

† IRISH SPRING MACKEREL

No.	Places where Fish are landed.	Collecting Stations.	Date when Fishing may be said to have commenced.	Date when Fishing may be said to have ended.	Quantity captured.
1	Dunmore East. ...	Dunmore East, ...	—	—	Cwts. 577
2	Queenstown, ...	Queenstown, ...	—	—	819
3	Kinsale,	Upper Cove, ...	27th March,	30th June,	19,040
4	Union Hall and Glendore.	Union Hall, ...	10th April	30th June,	5,380
5	South Reen and Castletownsend.	Castletownsend, ...	26th April,	29th June,	250
6	Baltimore,	Baltimore,	12th April,	30th June,	27,231½
7	Schull,	Schull,	Beginning of April.	30th June,	533
8	Castletown Berehaven.	Castletown Berehaven.	17th April,	30th June,	1,063
9	Garinish and Dursey.	Garinish and Dursey.	Continued from season until	from Autumn April.	4,001
10	Ballydonegan and Tranterla.	Ballydonegan, ...			1,536
11	Ballycrovane, Urhan, and Travarra.	Ballycrovane, ...	15th April,	30th May,	552
12	Derrynane, Rath, and West Cove,	Waterville, ...	March, ...	30th June,	360
13	Ballinskelligs, Boolakeel, Dungagon, Allahenemore, Boat Cove, Renroe, and Horse Island.	Ballinskelligs, ...	27th March,	17th May,	800
14	Portmagee,	Portmagee, ...	17th May,	7th June, ...	1,727½
15	Knightstown and Renard Point.	Knightstown, ...	15th April,	30th June,	19,756
16	Cahiriveen, Cooscroom, Coonana, and Renard Point.	Cahiriveen ...	28th March,	30th June,	2,178½
17	Dingle and Ballymore,	Dingle,	May, ...	June, ...	2,814
18	Smerwick, Ballinran-nig, Dooneen, and Ballydavid.	Ballinagall, 14M, ...	10th March,	30th June,	5,399½
19	Brandon Creek, ...	Brandon Creek, ...	May, ...	End of June,	2,764
20	Brandon Bay, ...	Brandon Bay, ...	7th May, ...	14th June,	1,707
21	Fenit,	Fenit,	22nd April,	27th June,	7,405
22	Kilkee, Farrahy, and Goleen.	Kilkee,	May, ...	30th June,	2,278½
23	Seafield and Caherrush,	Seafield,	April, ...	April, ...	263½
24	Killeaney Bay, ...	North Arran, ...	17th April ¹	30th June,	2,817

† See p. 134.

* Part landed in January, February, &c.,

FISHING, 1907. (TABLE NO. I.)

	Total approximate Value.	Number of Steamers carrying the Fish to England.	Number of Ice Hulks.	Number of Tons of Ice Imported.	Number of Barrels of Fish cured for Ex- portation.	Observations.	No.
	£ s. d.						
	196 2 5	—	—	—	—	No regular mackerel fish- ing.	1
	311 16 0	—	—	—	—	Do. do.	2
	6,986 3 0	2	1	950	260	—	3
	1,550 14 0	—	—	—	1,069	"	4
	92 0 0	—	—	—	43	"	5
	7,072 0 9	2	3	930	1,342	"	6
	135 6 0	—	—	—	128	"	7
	269 15 6	—	—	—	142	"	8
	1,117 6 6	1	—	—	1,660	Nearly all landed and cured in January.	9
	455 7 0						10
	205 15 6	—	—	—	—	"	11
	111 10 0	—	—	—	—	"	12
	290 0 0	—	—	—	—	"	13
	542 5 0	12	—	—	457	"	14
	7,161 13 0	—	4	745	3,835	"	15
	995 17 0	—	—	—	439	"	16
	805 0 6	—	—	—	1,164	Most landed and cured in January.	17
	1,770 18 0	—	—	—	200	Nearly all landed in January and February.	18
	1,004 14 0	—	—	—	48	Nearly all landed in January and February.	19
	620 0 0	—	—	—	409	"	20
	2,262 19 0	—	2	900	—	—	21
	726 9 9	—	—	—	360	"	22
	103 0 0	—	—	—	—	—	23
	707 6 10	—	2	450	—	"	24

before the opening of the regular Spring Season.

† IRISH SPRING MACKEREL

No.	Places where Fish are landed.	Collecting Stations.	Date when Fishing may be said to have commenced.	Date when Fishing may be said to have ended.	Quantity captured.
25	Roundstone, ...	Roundstone, ...	15th April,	30th June,	Cwts. 3,213
26	Clifden, Dunloughan, and Bunowen,	Clifden, ...	16th April,	20th June,	827
27	Cleggan, Inishboffin, and Derryinver.	Cleggan, ...	17th April,	30th June,	11,489
28	Achilbeg, ...	Achilbeg, ...	17th April,	15th June,	756
29	Lacken, Kileummin, Dock, and Rathfrán.	Ross, ...	1st April,	30th June,	2,947
30	Knockshambo, Glanfield, Graughill, Inver, Muinoreena, Tip, and Ballyglass.	Ballyglass, ...	14th May,	30th June,	2,500
31	Belderrig, Porturlin, and Portacloy.	Belderrig, ...	5th June,	30th June,	300
32	Killybegs, ...	Killybegs, ...	—	—	495
33	Burtonport, ...	Burtonport, ...	—	—	400
34	Downings Pier, ...	Mulroy, ...	—	—	320
35	Bunerana, ...	Bunerana, ..	—	—	504
Total, ...					134,979½

† See page 134.

* Part landed in January and February, &c.,

† IRISH SPRING MACKEREL

Mackerel were also landed at the places set forth below,

Collecting Station.	Places where landed.	Quantity.	Value.	Observations.
Courtown, ...	Courtown, ...	Cwts. 3	£ s. d. 0 18 0	—
Ballinacourty,	Ballinacourty and Dunganvan.	8	2 7 6	—
Youghal, ...	Youghal, ...	15	4 0 0	—
Ballycottin, ...	Ballycottin, ..	160	80 5 6	—
Crookhaven, ...	Crookhaven, ...	1	0 7 0	—
Bantry, ...	Bantry, ...	75	45 9 6	—
Ventry, ...	Dunquin and the Blaskets.	150	55 0 0	—
Ross and Kilbaha.	Ross and Kilbaha, ...	101½	27 19 0	20 barrels cured.
Tullig, ...	Tullig, ...	78½	20 7 0	—
Liscannor, ...	Liscannor, ...	44	15 17 0	—

† See page 134.

FISHING, 1907. (TABLE No. I.)—continued.

Total approximate Value.	Number of Steamers carrying the Fish to England.	Number of Ice Hulks.	Number of Tons of Ice Imported.	Number of Barrels of Fish cured for Ex- portation.	Observations.	No.
£ s. d. 611 5 9	—	1	230	90	—	25
193 3 6	—	—	—	83	—	26
3,101 3 6	—	1	500	1,033	*	27
188 11 0	—	—	17	—	Two Norwegian vessels, with curers, &c., arrived and cured about 265 bar- rels for Norway.	28
1,026 10 0	—	—	—	—	—	29
500 0 0	—	—	—	—	—	30
53 0 0	—	—	—	—	—	31
133 19 0	—	—	—	—	Taken in herring nets.	32
80 0 0	—	—	—	114	Do., do.	33
13 10 1	—	—	—	—	Do., do.	34
64 5 6	—	—	—	—	Do., do.	35
41,459 8 1	—	—	—	12,876		

before the opening of the regular Spring Season.

FISHING, 1907. (TABLE No. II.)

which are not included in the foregoing Return.

Collecting Station.	Places where landed.	Quantity.	Value.	Observations.
Ballaghaline, ...	Ballaghaline, ...	Cwts. 57½	£ s. d. 22 6 0	—
Ballyvaughan, ...	Glennina and Bally- vaughan.	5	1 5 0	—
South Arran, ...	South Arran, ...	22	22 0 0	—
Galway, ...	Galway, ...	33½	38 2 0	—
Clew Bay, ...	Clew Bay, ...	69½	24 4 0	—
Keel, ...	Keel, Dooagh, and Keem.	24	8 2 0	—
Belmullet, ...	Belmullet, ...	122½	65 19 6	—
Teelin, ...	Teelin and Cladna- geeragh.	92	26 15 6	8 Barrels cured.
	Totals, ...	1,059½	461 4 6	

* IRISH SUMMER HERRING

No.	Coast Guard Station.	Ports or Creeks from which the Fishing was carried on	Places at which the Boats discharged their Fish.	Date when Fishing may be said to have commenced.
1	Howth, . .	Howth, . . .	Howth, . . .	1st June, .
2	Dunmore East, .	Dunmore East, .	Dunmore East, .	1st February, .
3	East Ferry, .	Cork Harbour, .	Queenstown, .	3rd April, .
4	Upper Cove, .	Kinsale, . . .	Kinsale, . . .	8th May, .
5	Castletownbere, .	Castletownbere, Bantry, and Gerahies.	Castletownbere, Bantry, and Gerahies.	1st February, .
6	Ballycrovane, .	Glenderry, Pullen, and Ardroom.	Ardroom, . . .	1st February, .
7	Ballinskelligs, .	Ballinskelligs, Boolakeel, Horse Island, Renroe Point, Dungagon, and Boat Cove.	Ballinskelligs, Boolakeel, Renroe Point, Horse Island, Dungagon, and Boat Cove.	22nd March, .
8	Portmagee, .	Portmagee, . . .	Portmagee, . . .	14th February,
9	Knightstown, .	—	Knightstown, .	—
10	Fenit, . . .	—	Fenit, . . .	—
11	South Arran, .	South Arran, .	South Arran, .	1st February, .
12	North Arran, .	Kilronan, . . .	Kilronan, . . .	5th February,
13	Killybegs, . .	Killybegs, . . .	Killybegs, . . .	28th February,
14	Teelin, . . .	Teelin and Cladnageeragh.	Teelin and Cladnageeragh.	26th February,
15	Burtonport, .	Kincaslugh and Burtonport.	Kincaslugh and Burtonport.	Middle of May,
16	Mulroy, . . .	Downings Bay, .	Downings Pier, .	1st May, .
17	Buncrana, . .	Buncrana, . . .	Buncrana, . . .	7th May, .
18	Cloghy, . . .	Portavogie, . .	Portavogie, . .	27th April, .
19	Ardglass, . .	Ardglass, . . .	Ardglass, . . .	24th April, .
20	Kilkeel, . . .	Kilkeel, . . .	Kilkeel Harbour, .	9th June, .
21	Clogher Head, .	Clogher Head, .	Clogher Head, .	24th April, .
22	Balbriggan, .	Balbriggan, . .	Balbriggan, . .	—

FISHING, 1907. (TABLE NO. I.)

Date when Fishing may be said to have ended.	Quantity landed.	Value.	Quantity cured for Exportation.	Quantity sold for Local Consumption.	No.
31st July, .	Cwts. 0,528	£ s. d. 2,364 8 10	—	—	1
22nd June, .	1,911	530 19 0	—	One-eleventh.	2
18th June, .	300	60 1 0	—	One-quarter.	3
18th June, .	1,053	432 0 0	—	One-ninth.	4
31st July, .	1,200	400 0 0	150 barrels,	—	5
31st March. .	360	90 0 0	—	—	6
11th April, .	250	85 0 0	—	—	7
18th April, .	274	73 2 6	—	Nearly all.	8
—	350	83 17 6	—	—	9
—	316	73 0 0	—	Five-thirteenths.	10
17th April, .	352½	101 17 0	—	—	11
20th April, .	888	274 11 0	—	—	12
31st July, .	1,561	488 7 8	483 barrels, .	—	13
13th June, .	650	261 12 2	200 barrels, .	—	14
End of May, .	824½	598 10 6	300 barrels, .	—	15
10th June, .	31,124	18,448 5 9	10,897 barrels, .	—	16
1st June, .	10,756	4,635 7 0	3,778 barrels, .	—	17
31st July, .	11,501	3,131 6 6	—	One-half.	18
31st July, .	16,524	4,694 19 6	—	Three-eighths.	19
do. .	6,100	1,962 13 8	—	Two-thirds.	20
do. .	1,395	486 2 6	—	—	21
—	331	86 3 0	—	One-third.	22
	94,548½	39,412 5 1	16,808 barrels.		

[Table continued on page 168.]

* IRISH SUMMER HERRING FISHING, 1907. (TABLE No. I.)—*continued.*

No.	Coast Guard Stations.	Quantity despatched to distant markets for sale as <i>fresh</i> Fish.	Places where the Herrings were cured.	Month in which greatest Quantity captured.	Number of Steam Drifters that fished from Ports within this Station.	Number of Irish Row Boats using Seine or Ring Nets.	OBSERVATIONS.
1	Howth, .	All. . .	—	July, .	—	—	—
2	Dunmore East, .	Nearly all, .	—	June, .	4	—	—
3	East Ferry, .	Three-quarters, .	—	May, .	—	—	—
4	Upper Cove, .	Nearly all, .	—	May, .	—	—	—
5	Castletownbere, .	Balance, .	—	February, .	—	25	—
6	Ballycrovane, .	All, . .	—	February, .	—	—	—
7	Ballinskelligs, .	All, . .	—	April, .	—	11	—
8	Portmagee, .	—	—	April, .	—	8	—
9	Knightstown, .	All, . .	—	April, .	—	—	Captured with Mackerel.
10	Fenit, . . .	Eight-thirteenths, .	—	June, .	—	—	do.
11	South Arran, .	Nearly all, .	—	February, .	—	—	—
12	North Arran, .	All, . .	—	February, .	—	—	—
13	Killybegs, .	Balance, .	Killybegs, .	April, .	8	—	—
14	Teelin, . . .	Balance, .	Teelin & Cladnageragh, .	May, .	4	—	—
15	Burtonport, .	Balance, .	Gortnasate, .	May, .	3	—	—
16	Mulroy, . . .	—	Downings, .	May, .	55	—	—
17	Buncrana, . .	130 crans, .	Buncrana, .	May, .	64	—	—
18	Cloghy, . . .	One-half, .	—	July, .	—	—	—
19	Ardglass, . .	Five-eighths, .	—	June, .	—	—	—
20	Kilkeel, . . .	One-third, .	—	July, .	—	—	—
21	Clogher Head, .	All, . . .	—	—	—	—	Most of the fish were Autumn Herring landed in February.
22	Balbriggan, . .	Two-thirds, .	—	—	—	—	Do. (by Howth boats).

* IRISH SUMMER HERRING FISHING, 1907.

(TABLE No. II.)

Herrings were also landed at the places set forth below, which are not included in the foregoing Return.

Collecting Station.	Places where Landed.	Quantity.	Value.
		Cwts.	£ s. d.
Kingstown, . . .	Kingstown,	210	82 7 6
Arklow,	Arklow,	221½	93 12 0
Courtown, . . .	Courtown,	1	0 11 0
Ballinacourty, .	Dungarvan,	90	27 15 0
Youghal,	Youghal,	6	3 15 0
Ballycottin, . .	Ballycottin,	148½	49 10 0
Baltimore, . . .	Baltimore,	137	36 7 6
Dingle,	Dingle,	36	18 17 0
Ventry,	Ventry,	28½	9 19 0
Ballinagall, . .	Ballydavid and Dooneen, . . .	17½	6 0 0
Do,	Brandon Creek,	9	2 5 0
Ross,	Bealaglass and Ross,	4½	1 16 0
Moveen,	Moveen Goleen,	1	0 15 0
Kilkee,	Kilkee,	50	16 10 0
Coosheen,	Farrahy,	1	0 6 0
Liscannor, . . .	Liscannor,	55½	20 10 0
Ballaghaline, .	Ballaghaline,	2	1 8 0
Roundstone, . .	Roundstone,	18	3 15 0
Achilbeg,	Achilbeg,	2	1 5 6
Belmullet, . . .	Belmullet,	37	15 19 0
Pullocheeny, . .	Pullocheeny,	27½	10 7 6
Cushendall, . .	Cushendall,	60	30 0 0
Portmuck,	Portmuck, Bell's Cove, Hiddlesport, and Hills Port,	150	74 0 0
Carriekfergus, .	Carriekfergus,	87½	20 17 9
Whitehead, . . .	Whitehead, Marchbrien, Cloughfin, &c.	112	57 0 0
Portaferry, . . .	Portaferry,	200	75 0 0
Greenore,	Greenore,	2½	1 4 0
Skerries,	Skerries,	10	1 8 0
	Total,	1,725½	663 0 9

* See pp. 137-140.

STATEMENT of the TOTAL QUANTITY of FISH landed on the ENGLISH and WELSH COASTS during the Month and Nine Months ended 30th September, 1907, compared with the corresponding Periods of the Year 1906.

	September.		Nine Months ended 30th September.	
	1907.	1906.	1907.	1906.
QUANTITY.				
	Owts.	Owts.	Owts.	Owts.
Brill,	2,007	1,822	18,617	16,768
Soles,	5,002	5,678	47,833	52,776
Turbot,	5,242	4,986	51,026	52,973
Prime Fish not separately distinguished.	448	276	971	1,552
Total Prime Fish, .	12,699	12,762	116,447	124,069
Bream,	3,425	3,082	46,915	28,812
Catfish,	3,928	2,689	67,628	53,768
Coalfish,	25,882	11,711	145,637	108,358
Cod,	99,880	115,005	1,638,338	1,569,627
Oonger Eels,	4,240	4,743	38,005	37,044
Dabs,	10,696	10,441	78,950	85,537
Dogfish,	427	608	16,281	12,874
Dory,	181	333	1,833	2,136
Flounders or Flukes,	247	242	3,949	4,084
Gurnards,	6,781	5,067	78,969	71,701
Haddock,	238,224	279,425	2,113,328	2,050,224
Hake,	66,890	42,305	672,571	499,629
Halibut,	22,897	16,248	168,380	124,536
Latchets (Tubs),	142	240	2,351	2,588
Lemon Soles,	5,085	5,250	34,886	42,038
Ling,	14,682	15,888	132,764	154,863
Megrims,	9,474	10,212	62,640	53,216
Monks (or Anglers),	2,215	2,672	22,705	29,613
Mullet (Red),	38	28	477	512
Plaice,	99,874	81,860	700,147	627,419
Pollack,	2,219	1,698	12,228	10,974
Skates and Rays,	29,522	32,896	283,355	287,443
Torsk,	2,054	1,499	10,419	7,640
Whiting,	24,724	19,566	179,324	210,449
Witches,	1,960	2,154	19,589	24,322
Herrings,	429,666	452,381	1,321,012	1,107,594
Mackerel,	12,841	6,266	410,197	273,714
Mullet (Grey),	71	43	1,010	865
Pilchards,	43,689	74,940	84,207	128,430
Sprats,	—	—	16,176	14,855
Whitebait,	322	176	5,047	4,989
Fish not separately distinguished,...	39,689	27,864	296,390	246,131
Total,	1,264,664	1,240,294	8,782,155	7,990,054
Shell Fish:—	No.	No.	No.	No.
Crabs,	146,897	148,220	4,391,064	4,720,576
Lobsters,	45,435	50,173	461,376	481,115
Oysters,	3,250,800	3,449,120	22,718,630	21,526,768
Other Shell Fish,	Owts. 55,391	Owts. 49,258	Owts. 364,278	Owts. 351,001

NOTE.—The figures for 1907 are subject to correction.

STATEMENT of the TOTAL VALUE of FISH landed on the ENGLISH and WELSH COASTS during the Month and Nine Months ended 30th September, 1907, compared with the corresponding Periods of the Year 1906.

	September.		Nine Months ended 30th September.	
	1907.	1906.	1907.	1906.
	VALUE.			
	£	£	£	£
Brill,	6,229	5,350	53,306	50,378
Soles,	36,011	37,480	329,562	335,701
Turbot,	21,343	20,312	196,085	200,090
Prime Fish not separately distinguished.	612	362	1,407	2,186
Total Prime Fish, ...	64,195	63,504	580,360	588,355
Bream,	939	1,125	13,104	10,363
Outfish,	1,264	879	22,635	18,218
Coalfish,	5,622	3,028	44,375	34,900
Cod,	66,013	66,034	998,401	860,416
Conger Eels,	2,691	3,242	28,369	28,969
Dabs,	7,528	7,711	63,023	66,369
Dogfish,	120	165	4,844	3,819
Dory,	174	248	1,696	1,840
Flounders or Flukes,	142	158	2,643	2,517
Gurnards,	1,633	1,496	22,365	20,280
Haddock,	103,694	91,650	1,091,981	1,020,018
Hake,	50,008	38,375	423,516	325,350
Halibut,	36,016	29,314	270,980	227,399
Latchets (Tubs),	89	157	1,531	1,617
Lemon Soles,	11,573	12,229	86,034	101,856
Ling,	8,860	10,778	77,027	91,037
Megrim,	5,675	6,056	46,372	34,708
Monks (or Anglers),	788	884	8,813	11,235
Mullet (Red),	118	76	1,280	1,322
Plaice,	88,761	90,281	683,528	683,265
Pollack,	1,072	832	6,703	6,295
Skates and Rays,	13,866	14,338	160,423	156,482
Torsk,	778	594	4,193	3,133
Whiting,	8,962	8,135	89,076	104,946
Witches,	2,012	2,109	23,032	28,200
Herrings,	170,431	182,384	416,415	364,681
Mackerel,	5,224	3,897	182,275	161,657
Mullet (Grey),	147	103	1,665	1,491
Pilchards,	11,170	14,337	21,237	25,558
Sprats,	—	—	2,530	3,046
Whitebait,	627	344	6,741	6,255
Fish not separately distinguished,...	23,839	15,452	161,088	137,956
Total,	694,031	669,915	5,548,255	5,133,548
Shell Fish :—				
Crabs,	2,796	2,886	51,339	55,215
Lobsters,	2,204	2,426	22,091	23,299
Oysters,	10,457	10,778	69,009	61,618
Other Shell Fish,	14,010	12,861	103,490	95,096
Total,	29,467	28,951	245,929	235,228
Total value of all Fish, ...	723,498	698,866	5,794,184	5,368,776

NOTE.—The figures for 1907 are subject to correction.

STATEMENT of the TOTAL QUANTITY and VALUE of the FISH returned as landed on the SCOTTISH COASTS during the Month and Nine Months ended 30th September, 1907, compared with the corresponding periods for the Year 1906.

	September.		Nine Months ended 30th September.	
	1907.	1906.	1907.	1906.
QUANTITY.				
	Cwts.	Cwts.	Cwts.	Cwts.
Herrings,	333,745	431,767	6,168,078	4,854,265
Sprats,	1,852	2	4,110	370
Sparlings,	34	24	7	158
Mackerel,	8,339	6,796	25,969	26,224
Cod,	32,003	32,623	567,460	627,847
Ling,	9,413	11,481	116,239	113,822
Torsk (Tusk),	763	1,334	8,232	10,368
Salth (Coal Fish),	15,684	6,378	113,848	96,723
Haddock,	114,413	107,346	860,016	765,118
Whiting,	10,758	13,241	102,105	110,711
Conger Eel,	230	287	16,168	13,724
Turbot,	521	556	4,911	4,617
Halibut,	3,791	3,747	34,005	30,957
Lemon Soles,	3,722	3,895	25,276	25,410
Flounders, Plaice, Brill,	7,087	7,104	52,454	55,048
Skate and Rays,	5,717	5,883	72,184	81,363
Fish not separately distinguished, except Shell Fish.	9,760	12,078	78,281	74,655
Total,	557,332	645,044	8,249,453	6,891,380
Shell Fish:—	No.	No.	No.	No.
Crabs,	105,780	108,135	2,336,297	1,830,333
Lobsters,	90,957	88,283	537,073	551,878
Oysters,	112,370	26,540	51,836	165,970
	Cwts.	Cwts.	Cwts.	Cwts.
Clams,	140	143	4,564	5,501
Mussels,	9,963	13,200	45,065	81,018
Other Shell Fish,	3,264	3,150	35,727	37,211
VALUE.				
	£	£	£	£
Herrings,	74,816	151,208	1,789,866	1,614,691
Sprats,	89	1	670	77
Sparlings,	99	48	240	263
Mackerel,	1,939	1,644	6,276	7,131
Cod,	17,208	17,979	244,236	248,190
Ling,	2,392	2,947	37,640	37,792
Torsk (Tusk),	208	296	2,285	2,475
Salth (Coal Fish),	3,329	1,211	22,606	17,914
Haddock,	37,618	37,518	378,586	363,588
Whiting,	2,788	3,081	39,467	43,085
Conger Eel,	99	137	7,799	6,808
Turbot,	2,109	1,786	15,277	14,379
Halibut,	7,135	7,087	69,311	64,818
Lemon Soles,	7,793	7,643	52,428	49,607
Flounders, Plaice, Brill,	8,721	8,295	67,389	69,404
Skate and Rays,	1,207	1,186	21,461	22,974
Fish not separately distinguished, except Shell Fish.	4,277	5,780	41,000	41,470
Total,	171,777	247,757	2,786,627	2,594,666
Shell Fish:—				
Crabs,	739	802	11,945	11,723
Lobsters,	3,918	3,671	26,417	26,687
Oysters,	352	107	1,799	669
Clams,	18	22	651	797
Mussels,	500	644	4,566	4,543
Other Shell Fish,	1,115	971	9,896	10,657
Total,	6,642	6,217	55,277	55,076
Total Value of Fish landed,	178,419	253,974	2,841,904	2,649,742

NOTE.—The above figures are subject to correction in the Annual Returns.

STATEMENT of the TOTAL QUANTITY and VALUE of the FISH returned as landed on the IRISH COASTS during the Month and Nine Months ended 30th September, 1907, compared with the corresponding Periods of the Year 1906.

	September.		Nine Months ended 30th September.	
	1907.	1906.	1907.	1906.
QUANTITY.				
	Cwts.	Cwts.	Cwts.	Cwts.
Brill,	40	65	413	379
Soles,	295	194	1,925	1,389
Turbot,	97	88	482	413
Total Prime Fish,	432	347	2,820	2,131
Cod,	649	591	9,165	10,612
Conger Eel,	740	450	3,679	2,473
Haddock,	1,006	459	11,117	6,274
Hake,	595	650	3,003	3,831
Herrings,	24,525	34,586	104,730	130,341
Ling,	656	604	5,331	5,810
Mackerel,	5,388	4,016	119,566	117,125
Plaice,	2,058	1,351	14,027	9,462
Ray or Skate,	649	616	4,196	3,801
Sprats,	817	476	1,354	950
Whiting,	1,060	996	10,513	8,495
Fish not separately distinguished, except shell fish.	3,656	5,413	21,848	25,508
Total,	42,231	50,555	311,409	326,313
Shell Fish:—	No.	No.	No.	No.
Crabs,	45,501	48,518	281,397	185,751
Lobsters,	75,885	34,812	297,978	173,323
Oysters,	13,167	4,262	117,637	110,400
Mussels,	348	1,376	10,142	14,364
Other Shell Fish,	996	1,400	10,056	10,621
VALUE.				
	£	£	£	£
Brill,	65	108	775	728
Soles,	1,159	689	7,801	5,192
Turbot,	327	338	1,869	1,903
Total Prime Fish,	1,551	1,115	10,445	7,823
Cod,	722	525	6,631	7,643
Conger Eel,	436	316	2,244	1,810
Haddock,	944	510	6,850	4,834
Hake,	833	903	3,958	5,721
Herrings,	9,305	10,029	34,245	39,664
Ling,	419	502	3,579	4,791
Mackerel,	13,32	1,079	31,733	22,084
Plaice,	2,351	1,298	14,864	9,261
Ray or Skate,	210	345	1,777	1,640
Sprats,	120	53	218	154
Whiting,	915	653	7,022	5,843
Fish not separately distinguished, except shell fish.	1,538	2,390	10,112	13,599
Total,	20,769	19,718	133,873	124,867
Shell Fish:—				
Crabs,	186	232	1,154	931
Lobsters,	2,334	1,077	9,325	5,676
Oysters,	30	30	198	277
Mussels,	19	38	560	781
Other Shell Fish,	198	311	2,132	2,260
Total,	2,767	1,688	13,369	9,925
Total Value of Fish Landed,	23,536	21,406	147,242	134,792

NOTE.—The above figures are subject to correction in Annual Returns.

**AVERAGE PRICES of CROPS, LIVE STOCK, MEAT, PROVISIONS, &c., for
the QUARTER ended 30th SEPTEMBER, 1907.**

PRODUCT.	PROVINCE.				IRELAND.	
	Leinster.	Munster.	Ulster.	Con-naught.	1907.	1906.
CROPS :—	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
Wheat, per 112 lbs.	—	—	—	—	—	6 5½
Oats (White), "	7 2	6 2½	7 5	—	6 10½	6 2½
" (Black), "	7 0½	5 4	—	—	5 11	5 5½
Barley, . "	—	7 2	—	—	7 2	7 1½
Potatoes, . "	3 7½	3 0	4 4½	3 2½	3 6½	2 7½
Hay (Clover), . "	2 11½	2 0½	3 4	2 3½	2 9½	2 9½
" (Meadow), . "	2 2½	1 6½	2 7½	1 7½	1 9½	2 2
Grass Seed—						
(Perennial Rye), "	—	—	11 7	—	11 7	8 8½
(Italian Rye), . "	—	—	11 3½	—	11 3½	10 10½
Flax, . per 14 lbs.	—	—	7 6½	—	7 6½	6 11½
LIVE STOCK :—						
Store Cattle :—	<i>£ s. d.</i>	<i>£ s. d.</i>	<i>£ s. d.</i>	<i>£ s. d.</i>	<i>£ s. d.</i>	<i>£ s. d.</i>
One year old, per head,	7 17 3	7 3 11	5 13 10	6 16 7	6 16 10	6 8 10
Two years old, . "	10 19 10	9 13 11	8 14 10	9 14 0	9 14 5	9 6 10
Three years old, . "	13 7 3	13 13 1	11 1 4	11 14 10	12 11 1	12 2 3
Springers, . "	14 13 7	14 0 0	12 10 9	14 18 8	13 15 5	13 6 8
Store Sheep :—						
Lambs, . "	1 11 0	1 9 8	1 2 7	1 9 3	1 8 11	1 8 9
One year old and over, . "	2 7 11	1 19 7	1 6 2	2 7 9	2 0 11	2 1 2
Two years old and over, . "	2 5 5	—	1 3 9	2 4 5	2 2 2	2 3 9
Store Pigs (8 to 10 weeks old), . "	1 1 10	1 2 9	0 18 10	1 2 7	1 1 4	1 3 11
Fat Cattle :—						
Bullocks, . "	—	—	—	—	17 13 7	16 14 2
Heifers, . "	—	—	—	—	14 15 4	14 10 10
Cows, . "	—	—	—	—	14 11 0	14 19 1
Fat Sheep :—						
Wethers, . "	—	—	—	—	2 2 5	2 1 1
Ewes, . "	—	—	—	—	2 4 5	1 19 5
Hoggets, . "	—	—	—	—	2 8 11	2 7 0
Lambs, . "	—	—	—	—	1 10 6	1 10 8
MEAT, PROVISIONS, &c. :—	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
Beef (Live), . per 112 lbs.	—	—	—	—	31 7½	30 3½
" (Dead), . "	—	—	—	—	55 4½	52 11½
Mutton (Live), . "	—	—	—	—	38 4½	37 8
" (Dead), . "	—	—	—	—	67 1½	65 11
Pork (Dead), . "	51 5½	52 2½	50 7½	—	52 1	52 4½
Butter (Creamery), . "	100 3	100 1	—	—	100 1	104 6
" (Factory), . "	88 0	83 2	—	—	83 2	89 10
" (Farmers), . "	82 2	84 0	85 3	84 9	83 11	89 9
Eggs, . per 120	8 6½	7 10½	—	7 6½	8 2	8 2½
Wool, . per lb.	0 11½	0 11½	—	0 10½	0 11½	1 0½

WEEKLY AVERAGE PRICES of WHEAT, OATS, and BARLEY, per 112 lbs., computed from Market Returns of certain quantities of these Cereals supplied by Inland Revenue Officers, during the QUARTER ended 30th SEPTEMBER, 1907.

Returns received in the Week ended	WHEAT.		OATS.		BARLEY.	
	Average Price per 112 lbs.	Quantity.	Average Price per 112 lbs.	Quantity.	Average Price per 112 lbs.	Quantity.
1907.	s. d.	Cwts. of 112 lbs.	s. d.	Cwts. of 112 lbs.	s. d.	Cwts. of 112 lbs.
July 6, .	—	—	7 3½	3,052	—	—
" 13, .	—	—	7 2½	1,420	—	—
" 20, .	—	—	7 3½	2,234	—	—
" 27, .	—	—	7 3½	2,732	—	—
August 3, .	—	—	7 4½	2,342	—	—
" 10, .	—	—	7 6½	3,278	—	—
" 17, .	—	—	7 5½	2,408	—	—
" 24, .	—	—	7 5½	2,176	—	—
" 31, .	—	—	7 3	2,280	—	—
September 7, .	—	—	6 11½	4,616	—	—
" 14, .	—	—	6 2½	9,016	—	—
" 21, .	6 4	24	5 7½	17,652	7 1½	8,678
" 28, .	—	—	5 7½	26,325	7 2	24,018

AVERAGE PRICES of FAT CATTLE and FAT SHEEP, per 112 lbs., LIVE WEIGHT sold in the DUBLIN MARKET during the QUARTER ended 30th SEPTEMBER 1907, and also for the corresponding period during the ten preceding years.

DESCRIPTION.	YEAR.										
	1907.	1906.	1905.	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Fat Cattle, .	31 7½	30 3½	30 5½	31 6½	31 9½	33 10	31 6½	32 6½	30 11½	29 0½	29 10½
Fat Sheep, .	38 4½	37 8	35 1½	35 9½	33 1	32 1	32 0½	34 5½	33 1½	31 3½	32 10

NUMBER of ANIMALS included in Returns furnished under the MARKETS and FAIRS (Weighing of Cattle) ACT, 1891, Sections 3 and 4, during the Quarter ended 30th SEPTEMBER, 1907.

WEEK ENDED	FAT CATTLE.				FAT SHEEP.		
	Dublin.		Belfast		Dublin.		Total Number of Sheep included in Returns.
	Corporation Market Authorities.	Mr. Gavin Low, Auctioneer.	Mr. John Robson, Auctioneer.		Corporation Market Authorities	Mr. Gavin Low, Auctioneer.	
July 4, .	107	104	20	231	—	459	459
" 11, .	77	124	21	222	—	440	440
" 18, .	82	143	11	236	—	387	387
" 25, .	79	108	22	209	—	497	497
August 1, .	99	169	27	295	15	321	336
" 8, .	61	138	23	225	—	519	519
" 15, .	67	104	45	216	—	356	356
" 22, .	84	128	20	232	—	449	449
" 29, .	78	92	9	179	—	387	387
September 5, .	107	126	13	246	—	339	339
" 12, .	82	104	18	204	—	471	471
" 19, .	73	206	12	291	—	349	349
" 26, .	90	107	9	206	—	212	212
Totals, .	1,086	1,653	253	2,992	15	5,156	5,171

DISEASES OF ANIMALS IN IRELAND.

NUMBER of OUTBREAKS of SWINE-FEVER, and Number of SWINE returned as having been SLAUGHTERED in Ireland, under the Diseases of Animals Act of 1894, in the undermentioned period, by Order of the Department.

Quarter ended	SWINE-FEVER.	
	Outbreaks confirmed.	Swine Slaughtered as Diseased or as having been Exposed to Infection.
30th September, 1907,	57	922

NUMBER of OUTBREAKS reported as having taken place, and NUMBER of ANIMALS returned as having been attacked by ANTHRAX and GLANDERS in Ireland in the undermentioned period.

Quarter ended	ANTHRAX.		GLANDERS (including Farcy).		Epizootic Lymphangitis.	
	Outbreaks Reported.	Animals Attacked.	Outbreaks Reported.	Animals Attacked.	Outbreaks Reported.	Animals Attacked.
30th Sept., 1907, .	1	1	4	8	—	—

NUMBER of Cases of RABIES in DOGS in IRELAND during the undermentioned period.

Quarter ended	Number of Cases.
30th September, 1907,	—

NUMBER of OUTBREAKS reported as having taken place, and NUMBER of ANIMALS returned as having been attacked by SHEEP-SCAB and PARASITIC-MANGE in Ireland in the undermentioned period.

Quarter ended	SHEEP-SCAB.		PARASITIC-MANGE.	
	Outbreaks Reported.	Sheep Attacked.	Outbreaks Reported.	Animals Attacked.
30th September, 1907, .	21	164	16	17

Veterinary Branch,
Department of Agriculture and Technical Instruction for Ireland,
Dublin.

BUTTER PRICES DURING THE QUARTER

ABSTRACTED FROM "THE GROCER," "GROCER'S REVIEW,"

Excepting 1-lb. Rolls and Farmers' Butter all quotations are the Landed Prices of the less than the landed prices in Great Britain.

COUNTRY OF ORIGIN.	Type of Package.	Place of Sale.	WEEK ENDED			
			JULY			
			6th.	13th.	20th.	27th.
IRELAND—	Creamery Butter.	Kiels, kegs, or pyramid boxes, ...	Per cwt.	Per cwt.	Per cwt.	per cwt.
			s. s.	s. s.	s. s.	s. s.
			100-103	100-103	100-103	100-103
			97/6-104	97/6-104	97/6-104	97/6-104
			102-105	103-106	104-106	104-106
			102-104	102-104	102-103	103-104
			97-103	98-102	98-104	100-104
			100-102/6	100-103/6	100-103	101-104
			100-101	101-102	101-102	101-102
			Limerick, ...	—	—	—
			Cork, ...	—	—	—
			Belfast ...	—	—	—
			Dublin, ...	100-102	100-102	100-102
			F. O. R., ...	101/8	101/8-104	101/8-104
	Factories, ...	1 lb. rolls, 54 lb. boxes, ...	London, ...	86-98	86-98	86-98
			Liverpool, ...	94-93	90-96	88-96
			Bristol, ...	90	90	90
			Manchester, ...	—	—	—
	Farmers' Butter,	Firkins, 1st. Export Price.	Cardiff, ...	95-100	96-98	94-96
			Cork, ...	84	83-84	83-86
			Do. 2nd „	81-83	82	80-82
			Do. 3rd „	80-81	76-81	76-80
			Fresh, ...	84-90	83-89	77-87
			Cork, ...	—	—	71-90
FRANCE, ...	12x2 lb. rolls, ...	London, ...	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.
			10-12/6	10-12/6	10-12/6	10-12/6
	Paris baskets, ...	do., ...	Per cwt.	Per cwt.	Per cwt.	Per cwt.
			95-99	95-99	95-99	95-99
DENMARK AND SWEDEN.	Kiels, ...	Copenhagen Quotation,	98 Kr. 104/5 per 60 cwt. K'los.	93 Kr. 104/5 per 60 cwt. Kilos.	93 Kr. 104/5 per 60 cwt. Kilos.	96 Kr. 107/10 per 60 cwt. Kilos.
			Average overprice,	—	—	—
			London, ...	108-110	108-110	108-110
			Liverpool, ...	108/6-114	105/6-112	110-114
			Bristol, ...	—	—	—
			Cardiff, ...	110-112	110-114	110-114
			Manchester, ...	107-111	106-112	108-112
			Birmingham, ...	109-111/6	108-111	109-111
			Newcastle-on-Tyne, ...	108-110	107-109	107-109
			Glasgow, ...	110-111	110-111	110-111
			Leith, ...	110-111	109-111	110-110/6
			Hull, ...	110-115	108-115	112-115
			F. O. R. London,	113/2	113/2	113/2
			1 lb. rolls, 10x24 lbs. boxes, ...	—	—	116/8
FINLAND, ...	Kiels, ...	Manchester, ...	101-107	98-108	98-106	100-106
			Liverpool ...	104-107	102-104	101/6-106/6
			Hull, ...	107-110	106-111	107-112
			Cardiff, ...	106	106	106-106

ENDED 30TH SEPTEMBER, 1907.

"GROCER'S GAZETTE," AND OTHER TRADE REPORTS.

Choicest Qualities. The Nett F.O.R. Price to an Irish Creamery would be 5s. to 7s. per cwt.
This figure covers freight, commission, handling, &c.

WEEK ENDED

AUGUST					SEPTEMBER			
3rd.	10th.	17th.	24th.	31st.	7th.	14th.	21st.	28th.
Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.
^{s.} 102-105	^{s.} 104-106	^{s.} 104-106	^{s.} 104-106	^{s.} 102-105	^{s.} 102-103	^{s.} 104-107	^{s.} 106-110	^{s.} 108-112
104-108	104-108	104-108	102/6-108/6	100-106	100-105/6	102-106/6	105/6-111	109/6-112/6
106-108	106-108	106-108	105-110	105-110	105-108	106-110	106-112	110-114
106-108	104-108	106-108	106-108	105-108	104-107	104-106	109-112	115-116
104-107	104-108	104-107	103-108	104-107	102-107	103-108	106-110	110-114
103-106	104-106	106-108	104-108	101/6-109	103-106/6	104-108	104-111	107/6-112/6
105-107	107-108	107-108	106-107	104-105	104-105	105-106	103-109	111-112
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
100-107/4	100-107/4	100-107/4	100-107/4	100-107/4	100-105	100-105	105-110	108-112
107/6-108/8	107/6-108/8	107/6-111	107/6-111	104-111	104-111	108/8-111	111-114/6	111-114/6
86-98	86-98	86-98	86-98	84-98	84-94	88-96	88-98	90-100
94-100	90-102	96-102	94-100	92-100	94-100	94-100	96-102	96-102
—	88	90	90	90	90	90	90	90
—	86-90	—	—	—	—	—	86-94	—
96-98	96-100	98-101	98-100	88-98	94-96	92-98	94-100	98-100
85	85-86	85-87	87	85-87	84-85	85-86	86-88	88-90
78-80	78-79	79-80	78-79	78-80	79-81	80	80-81	81-85
72-76	72	72-74	72	72	72-74	73	73-77	76
74-94	78-91	80-91	76-89	75-88	75-89	78-92	80-94	80-96
Per doz. lbs. 10-12/6	Per doz. lbs. 10-12/6	Per doz. lbs. 10-12/6	Per doz. lbs. 10-12/6	Per doz. lbs. 10-12/6	Per doz. lbs. 10-12/6	Per doz. lbs. 10-12/6	Per doz. lbs. 10-13	Per doz. lbs. 10/6-13/6
Per cwt. 95-99	Per cwt. 95-99	Per cwt. 95-99	Per cwt. 95-99	Per cwt. 95-99	Per cwt. 95-99	Per cwt. 95-99	Per cwt. 100-104	Per cwt. 104-108
⁹⁶ Kr. 107/10 per = per 50 cwt. Kilos.	⁹⁶ Kr. 107/10 per = per 50 cwt. Kilos.	⁹⁶ Kr. 107/10 per = per 50 cwt. Kilos.	⁹⁶ Kr. 107/10 per = per 50 cwt. Kilos.	⁹³ Kr. 104/5 per = per 50 cwt. Kilos.	⁹³ Kr. 104/5 per = per 50 cwt. Kilos.	⁹⁷ Kr. 108/11 per = per 50 cwt. Kilos.	⁹⁹ Kr. 111/2 per = per 50 cwt. Kilos.	⁹⁹ Kr. 111/2 per = per 50 cwt. Kilos.
—	—	—	—	—	—	—	—	—
112-114	111-113	111-113	111-113	108-111	109-112	113-116	115-118	115-117
114/6-119	115-118	114-118	111/6-117	111-114/6	111-114	113/6-116	117-120	118-123
—	—	—	—	—	—	—	—	—
115-117	115-117	115-117	115-116	115-117	112-114	112-114	116-120	118-122
112-117	113-117	113-116	109-115	109-114	108-113	111-115	115-119	118-121
113-116	114-116	114-116	112-116/6	110-116/6	108/6-113	110-114	113-118/6	115/6-121
112-114	113-115	112-115	109-112	110-112	109-111	110-112	114-116	116-118
114-115	115-116	115-116	113-115	113-115	110-112	111-113	115-117	118-120
114-114/6	113-114	113-114	113-114	113-114	110-111	111-112	116-116/6	118-119
110-117	114-118	114-118	112-118	110-118	110-118	112-116	115-120	116-121
116/8	116/8	116/8	116/8	113/2	113/2	117/10	120/2	120/2
104-110	104-110	100-110	102-109	102-109	102-108	104-109	110-114	113-116
102-107	102-108	100-107	100-107	100-107	100-107	102-108	—	—
107-112	104-112	104-108	107-113	108-112	108-112	108-110	109-114	112-118
110	112	112	—	111	108	109	114	115-116

[Continued on pages 180-181.]

BUTTER PRICES DURING THE QUARTER

ABSTRACTED FROM "THE GROCER," "GROCER'S REVIEW,"

Excepting 1-lb. Rolls and Farmers' Butter all quotations are the Landed Prices of the less than the landed prices in Great Britain.

COUNTRY OF ORIGIN.	Type of Package.	Place of Sale.	WEEK ENDED			
			JULY			
			6th.	13th.	20th.	27th.
RUSSIA & SIBERIA,	KieIs, ..	London, ..	Per cwt. ^{s. s.} 90-98	Per cwt. ^{s. s.} 90-96	Per cwt. ^{s. s.} 92-96	Per cwt. ^{s. s.} 92-98
		Liverpool, ...	92-100	90-98	90-98	90-101
		Bristol, ...	92-96	92-96	92-96	92-96
		Cardiff, ...	96	88-96	94-98	96
		Manchester, ...	94-97	93-95	96-100	—
		Birmingham, ...	86-96	83/6-96	86-96	88-96
		N'castle-on-Tyne, ...	—	—	—	—
		Glasgow, ...	92-96	92-96	92-96	92-98
		Leith, ...	88-94	88-94	92-94	92-94
		Hull, ...	96-99	96-99	96-99	—
HOLLAND, ...	Boxes, ...	London, ...	—	100-102	100-102	100-102
		do. ...	Per doz. lbs. —	Per doz. lbs. 11/6-12	Per doz. lbs. 11/6-12/6	Per doz. lbs. 11/6-12
	Rolls, ...	do. ...	Per cwt. —	Per cwt. —	Per cwt. —	Per cwt. —
		Glasgow, { Fresh,	103-104	103-104	103-104	103-104
		{ Salt,	100-101	100-101	100-101	100-101
		Manchester, ...	99-101	—	99-101	—
ITALY, ...	Rolls, ...	Hull, ...	104-110	104-110	106-109	104-112
		London, ...	Per doz. lbs. 10/6-12/-	Per doz. lbs. 10/6-12/-	Per doz. lbs. 10/6-12/-	Per doz. lbs. 11-12
CANADA, ...	56 lb. boxes, ..	London, ...	Per cwt. —	Per cwt. —	Per cwt. —	Per cwt. —
		Liverpool, ...	—	—	—	—
		Bristol, ...	—	104-106	106	103-106
		Cardiff, ...	—	—	101-106	105-106
		Birmingham, ...	—	—	—	—
		Manchester, ...	—	—	—	—
		Glasgow, ...	—	—	—	—
		Hull, ...	—	—	—	—
AUSTRALIA & NEW ZEALAND.*	Boxes, ...	London, ...	A. { s. 88-96 u. 92-100 Z. 88-100	A. { s. 88-88 u. 94-98 Z. 98-100	A. { s. 88-88 u. 94-98 Z. 98-100	A. { s. 90-98 u. 94-100 Z. 94-100
		Liverpool, ...	A. — Z. 100-102	A. — Z. 100-102	A. — Z. —	A. — Z. —
		Bristol, ...	A. 96-100 Z. 100-105	A. 96-100 Z. 100-105	A. 96-100 Z. 100-104	A. 96-100 Z. 100-104
		Cardiff, ...	A. 94-96 Z. 101-104	A. 94-96 Z. 100-104	A. — Z. 100-101	A. — Z. 102-104
		Manchester, ...	A. — Z. —	A. — Z. —	A. — Z. —	A. — Z. —
		Birmingham, ...	A. — Z. —	A. — Z. —	A. — Z. —	A. — Z. —
		Glasgow, ...	A. — Z. —	A. — Z. —	A. — Z. —	A. — Z. —
		Leith, ...	A. — Z. —	A. — Z. —	A. — Z. —	A. — Z. —
		Hull, ...	A. — Z. —	A. — Z. —	A. — Z. —	A. — Z. —
		London, ...	—	—	—	—
		Liverpool, ...	—	—	—	—
		Bristol, ...	—	—	—	—
		Cardiff, ...	—	—	—	—
ARGENTINA, ...	Boxes, ...	Manchester, ...	—	—	—	—
		Birmingham, ...	—	—	—	—
		Glasgow, ...	—	—	—	—
		London, ...	—	—	—	—
		Liverpool, ...	—	—	—	—
		Bristol, ...	—	—	—	—
UNITED STATES, ...	Tubs and boxes,	Cardiff, ...	—	—	—	—
		Manchester, ...	—	—	—	—
		London, ...	—	—	—	—
		Liverpool, ...	—	—	—	—
		Bristol, ...	—	—	—	—

* A.—Australia. Z.—New Zealand. s.—Salted. u.—Unsalted.

ENDED 30TH SEPTEMBER, 1907—continued.

"GROCER'S GAZETTE," AND OTHER TRADE REPORTS.

Choicest Qualities. The Nett F.O.R. Price to an Irish Creamery would be 5s. to 7s. per cwt. This figure covers freight, commission, handling, &c.

WEEK ENDED									
AUGUST					SEPTEMBER				
3rd.	10th.	17th.	24th.	31st.	7th.	14th.	21st.	28th.	
Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.
S. S.	S. S.	S. S.	S. S.	S. S.	S. S.	S. S.	S. S.	S. S.	S. S.
94-98	94-98	94-98	94-98	94-98	94-98	94-98	94-100	94-100	96-102
86-96	83-96	90-100	91-102	90-100	90-100	90-100	88-98	90-102	94-102
92-100	92-102	92-102	92-100	92-100	92-100	92-100	92-102	92-106	92-108
95-98	94-98	94-98	97-98	98	98	98	98-100	98-100	100-102
—	95-98	94-98	—	94-98	96-98	92-100	94-104	94-104	100-104
92-98	92-98	92-98	92-98	92-98/6	87/6-98	88-100	86-100	89/6-102/6	—
—	—	—	—	—	—	—	—	—	—
92-98	92-98	92-98	92-98	92-98	92-98	92-96	98-102	98-102	98-102
92-94	92-94	92-94	92-94	92-94	92-93	92-94	92-96	92-96	93-96
—	96-100	95-100	—	—	—	—	—	—	—
102-104	102-104	104-106	—	—	—	106	106-108	110	—
Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.
12/- -12/6	12/- -12/6	12/- -12/6	—	—	—	12/6 -13/-	12/6 -13/6	—	—
Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.
105-106	106-108	106-108	107-109	107-109	107-109	107-109	112-114	119-120	119-120
102-103	102-104	102-104	103-105	103-105	103-105	103-105	108-110	114-115	114-115
104	104-105	106-107	—	106-107	—	107	110-112	113-115	113-115
106-112	108-112	108-112	110-114	110-114	110-114	108-112	114-116	116-120	116-120
Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.
11/- -12/-	11/- -12/-	11/- -12/-	11/6-12/6	11/6-13/-	—	12/- -13/-	12/- -13/-	12/6 -13/6	12/6 -13/6
Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.
—	—	104-110	104-110	104-110	—	—	108-112	110-116	110-116
104-106	106-109	106-108	103/6-107	103/6-106	102/6-107	103/6-107	105-110	107/6-112	107/6-112
106-110	107-110	106-110	106-110	106-110	106-110	108-112	110-114	112-116	112-116
107-108	107-108	106-108	108	106-110	106	105-107	110-112	114-116	114-116
103-106	104-106	106-103	104-107	102-108	106-111	106-110	107/6-112/6	109/6-115	109/6-115
103-106	105-103	105-107	104-107	106-107	106-107	106-108	106-110	108-110	108-110
—	108-109	108-109	108-109	—	—	—	—	—	—
A. s. 90-98 u. 96-100 Z. 100-102	A. s. 92-98 u. 98-102 Z. 102-106	A. s. 92-100 u. 98-102 Z. 104-108	A. s. 92-100 u. 98-102 Z. 104-108	A. s. 92-100 u. 94-102 Z. 104-108	A. s. 92-98 u. 98-102 Z. 104-108	A. s. 96-100 u. 100-104 Z. 104-108	A. s. 98-102 u. 104-110 Z. 106-110	A. s. 100-114 u. 102-116 Z. 108-112	A. s. 100-114 u. 102-116 Z. 108-112
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. 98-102	A. 98-102	A. 98-102	A. 98-104	A. 98-102	A. 98-104	A. 102-104	A. 94-106	A. 94-106	A. 94-106
Z. 102-104	Z. 102-106	Z. 102-107	Z. 102-107	Z. 102-107	Z. 102-107	Z. 102-108	Z. 104-110	Z. 105-110	Z. 105-110
A. 102	A. 96-100	A. 98-100	A. —	A. 100	A. —	A. —	A. —	A. 100-104	A. 100-104
Z. 106	Z. 104-106	Z. 106-108	Z. 107	Z. 106-107	Z. —	A. —	A. —	Z. 108-110	Z. 108-110
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —			

TABLES SHOWING THE EXPORTS

TABLE

RETURN of the NUMBER of ANIMALS EXPORTED from IRELAND to GREAT
PORT of EMBARKATION

IRISH PORTS.	CATTLE.							SHEEP.		
	Fat.	Stores (fattening).	Milch Cows.	Springers.	Other Cattle.	Calves.	Total.	Sheep.	Lambs.	Total.
Ballina, . . .	95	.	.	.	119	.	214	545	5,475	6,020
Belfast, . . .	6,326	24,075	2,288	2,733	.	215	35,637	3,564	21,426	24,990
Coleraine, . . .	3	214	3	25	.	.	246	15	69	84
Cork, . . .	2,590	8,121	717	1,300	87	6,965	19,789	3,420	19,160	22,580
Drogheda, . . .	7,134	2,828	344	75	.	4	10,385	10,551	16,783	27,334
Dublin, . . .	59,475	24,862	6,913	1,472	98	713	93,583	67,513	99,563	167,076
Dundalk, . . .	583	5,840	244	316	.	.	6,983	3,868	8,581	12,449
Dundrum, . . .	.	1	7	8	.	.	16	.	.	.
Greenore, . . .	842	5,787	596	1,757	5	6	8,993	3,689	12,556	16,245
Larne, . . .	219	5,797	.	186	.	.	6,202	415	1,486	1,901
Limerick, . . .	537	88	.	.	.	.	625	3	75	78
Londonderry, . . .	2,046	12,481	312	1,390	202	344	16,775	5,390	14,119	19,509
Newry, . . .	25	2,644	31	29	.	2	2,731	1,729	5,814	7,043
Portrush, . . .	8	248	1	1	.	.	258	54	24	78
Sligo, . . .	473	401	5	5	44	1	929	985	5,259	6,244
Waterford, . . .	8,022	8,382	209	140	25	225	17,003	7,875	14,025	21,900
Westport, . . .	443	.	4	12	109	.	568	2,804	6,613	9,417
Wexford, . . .	1,163	87	8	1	1	4	1,264	4,113	1,990	6,103
Total, . . .	89,993	101,856	11,682	9,450	691	8,479	222,151	116,533	232,518	349,051

TABLE

RETURN of the NUMBER of ANIMALS EXPORTED from IRELAND to GREAT
PORTS of DEBARKATION

BRITISH PORTS.	CATTLE.							SHEEP.		
	Fat.	Stores (fattening).	Milch Cows.	Springers.	Other Cattle.	Calves.	Total.	Sheep.	Lambs.	Total.
Ardrossan, . . .	1,806	5,482	1,089	679	.	18	8,874	15	218	233
Ayr, . . .	2,730	9,824	954	607	.	42	13,567	516	1,708	2,219
Barrow, . . .	72	778	136	318	.	.	1,304	9	194	203
Bristol, . . .	1,427	4,017	129	333	1	1,331	7,238	4,190	6,974	11,164
Campbelltown, . . .	.	36	.	.	.	.	36	.	.	.
Cardiff, . . .	.	.	.	.	.	.	.	.	.	.
Falmouth, . . .	.	.	.	.	.	.	.	.	.	.
Fishguard, . . .	4,584	8,796	498	744	25	4,336	18,923	3,811	13,637	17,448
Fleetwood, . . .	295	2,103	361	494	.	24	3,277	2,619	15,996	18,615
Glasgow, . . .	10,645	14,411	626	1,127	501	629	27,939	811	7,309	8,120
Greenock, . . .	304	2,409	17	56	9	.	2,795	50	65	115
Heysham, . . .	2,465	9,201	805	1,030	.	1	13,502	5,612	2,582	8,194
Holyhead, . . .	11,622	18,281	1,088	1,821	13	323	33,268	23,731	33,973	57,704
Liverpool, . . .	40,566	20,524	6,609	1,970	136	1,604	71,309	67,074	134,503	201,577
London, . . .	.	.	.	.	.	.	.	.	.	.
Manchester, . . .	8,374	90	42	11	6	3	8,526	6,826	14,243	21,069
Newhaven, . . .	.	10	.	1	.	20	31	.	.	.
Plymouth, . . .	800	23	.	1	.	113	937	.	10	10
Silloth, . . .	4,131	784	9	.	.	.	4,924	779	414	1,193
Southampton, . . .	169	179	2	.	.	35	385	445	39	484
Stranraer, . . .	203	4,967	.	160	.	.	5,320	45	668	703
Whitehaven, . . .	.	1	7	8	.	.	16	.	.	.
Total, . . .	89,993	101,856	11,682	9,450	691	8,479	222,151	116,533	232,518	349,051

AND IMPORTS OF ANIMALS.

I.

BRITAIN during the Three Months ended 30th SEPTEMBER, 1907, showing the in Ireland.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	IRISH PORTS.
Fat.	Stores.	Total.		Stallions.	Mares.	Geldings.	Total.				
518		518			1		1			6,753	Ballina.
2,728	1,637	4,365	4	5	681	1,433	2,119	3	25	67,143	Belfast.
23		23			8		8		3	374	Coleraine.
4,941	117	5,058	1	2	374	548	924	4	99	48,455	Cork.
688	361	1,049			12	17	29			38,801	Drogheda.
20,894	76	20,970	13	75	1,903	1,735	3,713	2	8	285,315	Dublin.
3,725	1,486	5,211	438		87	79	166		266	25,513	Dundalk.
										16	Dundrum.
401	257	658	13		815	556	1,371	1	4	27,385	Greenore.
62	3,011	3,073	52	6	40	72	118		2	11,348	Larne.
										703	Limerick.
1,083	340	1,423		2	48	55	105		3	37,815	Londonderry.
308		308	35		12	13	25		3	10,145	Newry.
300	9	309			1		1		1	646	Portrush.
5,390		5,390	1		5	6	11			12,576	Sligo.
5,062	4	5,066	3	10	389	504	903		43	44,918	Waterford.
526		526			3	6	9		1	10,521	Westport.
2,595		2,595	1		4	7	11		2	9,976	Wexford.
49,246	7,298	56,544	568	100	4,383	5,039	9,522	10	460	638,306	Total.

II.

BRITAIN during the Three Months ended 30th SEPTEMBER, 1907, showing the in Great Britain.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	BRITISH PORTS.
Fat.	Stores.	Total.		Stallions.	Mares.	Geldings.	Total.				
102	1,067	1,169	34		80	186	266		3	10,579	Ardrossan.
820	2,455	3,275		1	27	89	113		3	19,167	Ayr.
647	25	672			21	47	68		12	2,259	Barrow.
3,355		3,355	1	1	127	233	361		46	22,165	Bristol.
										36	Campbelltown.
						1	1			1	Cardiff.
					1	1	2			2	Falmouth.
950	4	954		7	547	668	1,222		17	38,564	Fishguard.
324	431	655		1	231	412	644		3	23,194	Fleetwood.
5,907	280	6,187	2	4	214	415	633	1	7	42,869	Glasgow.
	122	122		1	10	21	32		1	3,065	Greenock.
4,391		4,391		1	207	392	600		5	26,692	Heysham.
10,563	283	10,846	15	72	2,118	1,746	3,936	2	7	105,788	Holyhead.
21,265	1,225	22,490	464	6	578	593	1,177	2	351	297,370	Liverpool.
											London.
796		796			121	101	222	1		30,614	Manchester.
					5	4	9		1	41	Newhaven.
80		80			20	19	39			1,066	Plymouth.
					12	7	19			6,136	Silloth.
146		146			24	36	60	4	3	1,382	Southampton.
	1,426	1,426	52	6	40	72	118		1	7,620	Stranraer.
										16	Whitehaven.
49,246	7,298	56,544	568	100	4,383	5,039	9,522	10	460	638,506	Total.

TABLE

RETURN of the NUMBER of ANIMALS IMPORTED into IRELAND from GREAT BRITAIN
of DEBARKATION

IRISH PORTS.	CATTLE.							SHEEP.		
	Fat.	Stores (fattening).	Milch Cows.	Springers.	Other Cattle.	Calves.	Total.	Sheep.	Lambs.	Total.
Ballina,	1	62	63
Belfast,	17	5	3	.	.	25	8,552	1,689	10,241
Coleraine,	59	269	328
Cork,	1	1	102	9	111
Drogheda,
Dublin,	25	11	5	.	1	42	10,183	3,561	13,744
Dundalk,	1,271	.	1,271
Dundrum,
Greenore,	2	2	4	.	.	.
Larne,	1,406	682	2,088
Limerick,
Londonderry,	2	2	373	7,879	8,252
Newry,	70	70
Portrush,	3	227	230
Rosslare,	2	.	2
Sligo,	11	156	167
Waterford,	148	2	150
Westport,	168	.	168
Wexford,
Total,	42	16	8	2	6	74	22,279	14,606	36,885

TABLE

RETURN of the NUMBER of ANIMALS IMPORTED into IRELAND from GREAT BRITAIN
EMBARKATION in

BRITISH PORTS.	CATTLE.							SHEEP.		
	Fat.	Stores (fattening).	Milch Cows.	Springers.	Other Cattle.	Calves.	Total.	Sheep.	Lambs.	Total.
Ardrossan,	7	.	.	.	.	7	1,605	551	2,156
Ayr,	9	1	1	.	.	11	7,174	1,363	8,537
Barrow,
Bristol,	1	1	50	.	50
Cardiff,
Falmouth,
Fishguard,	45	9	54
Fleetwood,	1	.	1
Glasgow,	7	7	3	.	2	19	4,936	9,393	14,329
Greenock,	17	1,507	1,524
Heysham,	2	.	.	.	1	3	6	.	6
Holyhead,	17	3	.	2	2	24	239	.	239
Liverpool,	1	.	.	.	1	36	2	38
London,	1	.	1
Manchester,
Newhaven,	10	.	10
Plymouth,
Silloth,	6,010	1,298	7,308
Southampton,	4	4	.	.	8	23	.	23
Stranraer,	865	483	1,348
Whitehaven,	1,271	.	1,271
Total,	42	16	8	2	6	74	22,279	14,606	36,885

III.

during the Three Months ended 30th SEPTEMBER, 1907, showing the PORTS in Ireland.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	IRISH PORTS.
Fat.	Stores.	Total.		Stallions.	Mares.	Geldings.	Total.				
.	.	2	.	4	1	63	72	139	.	64	Ballina.
.	2	2	.	.	69	59	131	.	.	10,407	Belfast.
.	.	.	.	3	3	1	4	.	.	328	Coleraine.
.	1	1	.	76	514	370	900	1	1	213	Cork.
.	1	1	.	.	4	Drogheda.
.	14,749	Dublin.
.	1,272	Dundalk.
1	.	1	.	.	23	16	39	1	.	.	Dundrum.
.	.	.	.	1	15	10	26	.	.	45	Greenore.
.	2,114	Larne.
.	.	.	.	1	10	11	22	.	.	8,276	Limerick.
.	.	.	.	2	4	1	7	.	.	77	Londonderry.
.	230	Newry.
.	1	1	.	2	1	1	4	.	.	730	Portrush.
.	1	.	1	.	.	.	Rosslare.
.	.	.	.	1	34	46	81	.	.	168	Sligo.
.	1	4	5	.	.	231	Waterford.
.	108	Westport.
.	5	Wexford.
1	4	5	.	90	739	592	1,421	2	1	38,388	Total.

IV.

during the Three Months ended 30th SEPTEMBER, 1907, showing the PORTS of Great Britain.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	BRITISH PORTS.
Fat.	Stores.	Total.		Stallions.	Mares.	Geldings.	Total.				
.	.	.	.	1	8	7	16	.	.	2,179	Ardrossan.
.	2	2	.	.	2	12	14	.	.	8,532	Ayr.
.	.	.	.	3	1	1	1	.	.	3	Barrow.
.	.	.	.	29	19	51	102	.	.	102	Bristol.
.	1	1	1	.	.	1	Cardiff.
.	1	1	.	3	1	1	1	.	.	1	Falmouth.
.	.	.	.	3	61	72	136	.	.	191	Fishguard.
.	.	.	.	3	35	35	73	.	.	74	Fleetwood.
.	.	.	.	23	20	43	14,391	.	.	1,549	Glasgow.
.	.	.	.	1	7	17	25	.	.	1,549	Greenock.
1	1	2	.	73	9	16	889	1	1	34	Heysham.
.	.	.	.	487	329	889	1,156	.	.	1,156	Holyhead.
.	.	.	.	5	37	45	87	1	.	127	Liverpool.
.	.	.	.	2	1	3	4	.	.	4	London.
.	.	.	.	3	1	4	.	.	.	4	Manchester.
.	10	Newhaven.
.	.	.	.	3	1	4	.	.	.	4	Plymouth.
.	.	.	.	13	4	17	7,325	.	.	7,325	Silloth.
.	.	.	.	3	3	6	37	.	.	37	Southampton.
.	.	.	.	1	15	9	25	.	.	1,363	Stranraer.
.	1,271	Whitehaven.
1	4	5	.	90	739	592	1,421	2	1	38,388	Total.

RETURN of the NUMBER of ANIMALS EXPORTED from IRELAND to the
showing the PORTS of

IRISH PORTS.	CATTLE.					SHEEP.		
	Fat.	Stores.	Other Cattle.	Calves	Total.	Sheep.	Lambs.	Total.
BELFAST,	46	159	.	7	212	31	488	519
DUBLIN,	27	79	.	.	106	44	2,185	2,229
TOTAL,	73	238	.	7	318	75	2,673	2,748

RETURN of NUMBER of ANIMALS EXPORTED from IRELAND to the
showing the PORTS of DEBARKATION

ISLE OF MAN PORT.	CATTLE.					SHEEP.		
	Fat.	Stores.	Other Cattle.	Calves	Total.	Sheep.	Lambs	Total.
DOUGLAS,	73	238	.	7	318	75	2,673	2,748

RETURN of the NUMBER of ANIMALS IMPORTED into IRELAND from the
showing the PORTS of

IRISH PORTS.	CATTLE.					SHEEP.		
	Fat.	Stores.	Other Cattle.	Calves	Total.	Sheep.	Lambs.	Total.
BELFAST,
DUBLIN,
TOTAL,

RETURN of the NUMBER of ANIMALS IMPORTED into IRELAND from the
showing the PORTS of EMBARKATION

ISLE OF MAN PORT.	CATTLE.					SHEEP.		
	Fat.	Stores.	Other Cattle.	Calves	Total.	Sheep.	Lambs.	Total.
DOUGLAS,

ISLE OF MAN during the Three Months ended 30th SEPTEMBER, 1907,
EMBARKATION IN IRELAND.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	IRISH PORTS.
Fat.	Stores.	Total.		Stal- lions.	Mares.	Geld- ings.	Total.				
.	10	16	26	.	.	757	BELFAST.
.	1	1	.	.	2,336	DUBLIN.
.	10	17	27	.	.	3,093	TOTAL.

ISLE OF MAN during the Three Months ended 30th SEPTEMBER, 1907,
in the ISLE OF MAN.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	ISLE OF MAN PORT.
Fat.	Stores.	Total.		Stal- lions.	Mares.	Geld- ings.	Total.				
.	10	17	27	.	.	3,093	DOUGLAS.

ISLE OF MAN during the Three Months ended 30th SEPTEMBER, 1907.
DEBARKATION IN IRELAND.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	IRISH PORTS.
Fat.	Stores.	Total.		Stal- lions.	Mares.	Geld- ings.	Total.				
.	2	2	.	.	2	BELFAST.
.	1	1	2	.	.	2	DUBLIN.
.	1	3	4	.	.	4	TOTAL.

ISLE OF MAN during the Three Months ended 30th SEPTEMBER, 1907,
in the ISLE OF MAN.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	ISLE OF MAN PORT.
Fat.	Stores.	Total.		Stal- lions.	Mares.	Geld- ings.	Total.				
.	1	3	4	.	.	4	DOUGLAS.

COASTING AND

RETURN of the NUMBER of ANIMALS SHIPPED to and from Places in Ireland
of Embarkation

IRISH PORTS.	CATTLE.					SHEEP.			SWINE.		
	Fat.	Stores.	Other Cattle.	Calves.	Total.	Sheep.	Lambs.	Total.	Fat.	Stores.	Total.
Cork to Aghada Pier.	11	127	138	.	.	.
" to Belfast.
" to Spike Island.
" to Queenstown.
" to Waterford.	.	1	.	20	21	.	.	.	.	.	.
Total.	.	1	.	20	21	11	127	138	.	.	.
Aghada Pier to Cork.	117	10	127	187	4	191
Dublin "
Spike Island "
Queenstown "	36	.	36
Waterford "
Total.	117	10	127	223	4	227
Waterford to Ballyhack.
" to Belfast.
" to Duncannon.	.	28	23	.	51	.	.	.	.	.	.
Total.	.	28	23	.	51	.	.	.	.	.	.
Ballyhack to Waterford.	7	25	.	.	32	68	233	301	11	5	16
Belfast to Waterford.
Dublin to Waterford.
Duncannon to Waterford.	20	10	.	.	30	12	33	45	266	.	266
Kilrush to Limerick.	42	100	.	.	142	11	10	21	1,477	.	1,477
Kildysart "
Kilkee "
Portumna "	118	.	118
Tarbert "
Bannagher "
Total.	42	100	.	.	142	11	10	21	1,595	.	1,595
Greencastle to Greenore.	.	66	.	.	66	55	.	55	.	.	.
Greenore to Greencastle.
Londonderry to Moville.	.	6	.	4	10	3	9	12	.	2	2
Moville to Londonderry.	2	224	2	8	236	93	.	93	1	8	9
Ballina to Sligo.	.	10	.	.	10	.	.	.	.	.	.
Belmullet "	.	3	.	.	3	.	353	353	469	.	469
Total.	.	13	.	.	13	.	353	353	469	.	469
Sligo to Belmullet.
Total.	71	473	25	32	601	370	775	1,145	2,565	19	2,584

INLAND NAVIGATION.

during the Three Months ended 30th September, 1907, showing the Places and Debarkation.

Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	IRISH PORTS.
	Stallions.	Mares.	Geldings.	Total.				
.	.	.	2	2	.	.	140	Cork to Aghada Pier.
.	.	2	9	11	.	.	11	" to Belfast.
.	" to Spike Island.
.	" to Queenstown.
.	21	" to Waterford.
.	.	2	11	13	.	.	172	Total.
.	318	Aghada Pier to Cork.
.	Dublin "
.	Spike Island "
.	36	Queenstown "
.	Waterford "
.	354	Total.
.	Waterford to Ballyhack.
.	.	2	2	4	.	.	4	" to Belfast.
.	51	" to Duncannon.
.	.	2	2	4	.	.	55	Total.
.	349	Ballyhack to Waterford.
.	.	.	1	1	.	.	1	Belfast to Waterford.
.	1	.	1	2	.	.	2	Dublin to Waterford.
.	.	2	.	2	.	.	343	Duncannon to Waterford.
.	1,640	Kilrush to Limerick.
.	Kildysart "
.	Kilkee "
.	118	Portumna "
.	Tarbert "
.	Banagher "
.	1,758	Total.
.	121	Greencastle to Greenore.
.	Greenore to Greencastle.
.	24	Londonderry to Moville.
.	338	Moville to Londonderry.
.	.	.	1	1	.	.	11	Ballina to Sligo.
.	.	3	2	5	.	.	830	Belmullet "
.	.	3	3	6	.	.	841	Total.
.	Sligo to Belmullet.
.	1	9	18	28	.	.	4,358	Total.

RETURN of the NUMBER of HORSES EXPORTED from IRELAND through GREAT BRITAIN to the COLONIES and FOREIGN COUNTRIES during the THREE MONTHS ended 30th SEPTEMBER, 1907, showing the Ports of Embarkation in Ireland.

PORTS.	Number of Horses.			
	Stallions.	Mares.	Geldings.	Total.
Belfast,	—	74	90	164
Cork,	—	4	6	10
Dublin,	15	284	153	452
Dundalk,	—	48	22	70
Greenore,	—	228	91	319
Waterford,	2	—	5	7
Total,	17	638	367	1,022

RETURN of the NUMBER of HORSES IMPORTED into IRELAND through GREAT BRITAIN from the COLONIES and FOREIGN COUNTRIES during the THREE MONTHS ended 30th SEPTEMBER, 1907, showing the Ports of Debarkation in Ireland.

PORTS.	Number of Horses.			
	Stallions.	Mares.	Geldings.	Total.
Belfast,	—	—	—	—
Dublin,	—	3	—	3
Waterford,	—	—	1	1
Total,	—	3	1	4

RETURN of the NUMBER of HORSES IMPORTED into IRELAND direct from FOREIGN COUNTRIES during the THREE MONTHS ended 30th SEPTEMBER, 1907, showing the Ports of Debarkation in Ireland.

PORTS.	Number of Horses.			
	Stallions.	Mares.	Geldings.	Total.
Dublin,	67	291	106	464
Portrush,	—	98	100	198
Total,	67	384	206	657

EMIGRATION FROM IRELAND.

TABLE showing, by Destinations, the Numbers of Emigrants (Natives of Ireland) who left the Ports of Ireland during the months of July, August, and September, 1907, and the total for the Nine Months ended the 30th September, 1907 ; together with the total Number of Emigrants in each of the corresponding periods of the year 1906.

DESTINATION.	July, 1907.	August, 1907.	September, 1907.	Nine Months ended 30th September, 1907.
FOREIGN COUNTRIES :—				
America (U.S.),	1,334	2,232	4,149	24,925
Canada,	382	465	386	3,782
South Africa,	12	14	13	181
Australia,	25	42	32	285
New Zealand,	15	13	4	86
Other Countries,	7	6	9	68
Total,	1,775	2,772	4,593	29,327
GREAT BRITAIN :—				
England and Wales,	235	235	196	1,795
Scotland,	72	110	114	1,204
Total,	307	345	310	2,999
General Total for 1907,	2,082	3,117	4,903	32,326
General Total for 1906,	1,760	2,628	4,081	30,081

The figures are subject to revision in the Annual Report.

The figures in the above Table have been extracted from Returns published by the Registrar-General for Ireland.

ACCOUNT showing the QUANTITIES of certain kinds of AGRICULTURAL
into Ireland in each WEEK from

ARTICLES.	WEEK ENDED				
	6th July.	13th July.	20th July.	27th July.	3rd. August.
ANIMALS, LIVING—					
Horses, No.	194	.	.	.	464
FRESH MEAT—					
Beef (including refrigerated and frozen), cwts.	.	.	.	.	2,250
Mutton, " " " " "	.	90	.	.	1,300
SALTED OR PRESERVED MEAT—					
Bacon, cwts.	.	.	.	.	.
Beef, . . . . . "	.	.	.	.	.
Hams, . . . . . "	.	.	.	.	.
Pork, "	.	550	.	.	.
Meat, unenumerated, Salted or Fresh, cwts.	.	.	22	.	.
Meat preserved otherwise than by salting (including tinned and canned), cwts.	3	.	.	.	.
DAIRY PRODUCE AND SUBSTITUTES—					
Butter, cwts.	.	.	.	.	.
Margarine, "	358	137	135	119	220
Cheese, . . . . . "	.	.	.	.	78
Milk, Condensed, "	54	108	118	14	26
" Cream, . . . . . "	.	.	.	.	.
" Preserved, other kinds "	.	.	.	.	.
EGGS, gt. hunds.	1,392	1,500	624	.	.
LARD, cwts.	6	6	114	.	1,222
CORN, GRAIN, MEAL, AND FLOUR—					
Wheat, cwts.	10,800	79,200	97,800	54,200	54,700
Wheat Meal and Flour, "	51,200	7,500	2,100	3,000	25,400
Barley, . . . . . "	.	.	.	.	.
Oats, . . . . . "	.	.	.	.	.
Peas, "	40	20	20	.	.
Beans, . . . . . "	.	.	.	.	.
Maize or Indian Corn, "	538,100	118,500	345,900	507,300	468,600
FRUIT, RAW—					
Apples, cwts.	.	.	.	.	.
Currants, . . . . . "	.	.	.	.	.
Gooseberries, . . . . . "	.	.	.	.	.
Pears, . . . . . "	.	.	.	.	.
Plums, . . . . . "	.	.	.	.	.
Grapes, . . . . . "	.	.	.	.	.
Lemons, . . . . . "	.	.	.	.	.
Oranges, . . . . . "	.	.	.	.	.
Strawberries, . . . . . "	.	.	.	.	.
Unenumerated, . . . . . "	.	.	.	.	.
HAY, tons	.	.	.	.	.
STRAW, "	.	.	.	2	.
MOSS LITTER, "	63	52	30	.	29
HOPS, cwts.	.	.	.	.	.
VEGETABLES, RAW—					
Onions, bushels	.	.	.	80	14
Potatoes, cwts.	.	.	.	.	.
Tomatoes, . . . . . "	.	.	.	.	.
Unenumerated, £	.	.	8	.	.
VEGETABLES, DRIED, cwts.	.	.	.	.	.
Preserved by Canning, "	.	.	44	.	.
POULTRY AND GAME, . . . . . £	.	.	.	.	.

* This Table is confined to the Imports of certain kinds of Agricultural Produce into to a request from this Department kindly consented to separate the Irish Imports (direct) form of Weekly Returns.

PRODUCE Imported direct (i.e. from the Colonies or Foreign Countries)
6th July, 1907, to 28th September, 1907.*

WEEK ENDED								
10th August.	17th August.	24th August.	31st August.	7th Sept.	14th Sept.	21st Sept.	28th Sept.	
.	.	.	.	395	.	.	.	
.	
.	
.	120	171	.	333	.	197	.	
.	
.	1	.	.	.	.	.	.
230	54	153	91	130	93	142	95	
83	82	200	.	50	137	65	614	
.	83	71	86	.	.	.	86	
.	
.	708	.	.	240	3,480	.	840	
287	.	.	.	.	.	14	.	
109,600	91,200	186,800	49,700	66,600	246,200	61,500	243,800	
11,600	34,300	18,000	2,800	28,300	9,400	2,900	48,600	
.	.	5,700	.	.	.	.	.
20	20	.	20	.	.	.	.
262,700	517,700	364,500	318,000	217,100	380,600	139,900	429,800	
.	.	4	.	10	.	18	46	
.	.	12	89	95	59	46	304	
.	.	.	97	185	.	.	.	
.	
.	
.	
.	
63	10	63	90	86	10	.	84	
.	.	.	.	.	.	4	.	
374	.	1,246	334	1,468	180	3,592	2,482	
.	
2	.	.	10	13	.	6	7	
.	
.	

Ireland from the Colonies and Foreign Countries. The Board of Customs have in answer from those of the United Kingdom, and to supply this Department with them in the

Statistics and Intelligence Branch,
 Department of Agriculture
 and Technical Instruction for Ireland.

AGRICULTURAL RETURNS OF GREAT BRITAIN, 1907.

PRELIMINARY STATEMENT for 1907, compiled from the RETURNS collected on the 4th June; and comparison with 1906.

CROPS.

DISTRIBUTION.	1907.	1906.	Increase.		Decrease.	
	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Per Cent.</i>	<i>Acres.</i>	<i>Per Cent.</i>
TOTAL AREA (excluding WATER), ...	56,201,418	56,201,418	—	—	—	—
TOTAL ACREAGE under all CROPS and GRASS,*	32,244,110	32,266,755	—	—	22,615	0.1
Wheat,	1,625,488	1,755,096	—	—	130,208	7.4
Barley,	1,712,166	1,751,238	—	—	39,072	2.2
Oats,	3,122,936	3,042,926	80,010	2.6	—	—
Rye,	61,211	64,808	—	—	3,597	5.6
Beans,	309,761	288,891	20,870	7.2	—	—
Peas,	166,138	153,979	12,159	7.9	—	—
Potatoes,	548,921	565,921	—	—	17,000	3.0
Turnips and Swedes,	1,563,031	1,590,920	—	—	27,889	1.8
Mangold,	450,063	431,468	18,605	4.3	—	—
Cabbage,	74,897	70,368	4,529	6.4	—	—
Kohl-Rabi,	20,687	17,714	2,973	16.8	—	—
Rape,	91,273	93,830	—	—	2,557	2.7
Vetches or Tares,	154,058	142,047	12,011	8.5	—	—
Lucerne,	63,796	55,734	8,062	14.5	—	—
Other Crops,	121,499	113,997	7,502	6.6	—	—
Clover and Rotation Grasses. {	For Hay,	2,250,371	2,191,587	58,784	2.7	—
	Not for Hay,	2,240,657	2,249,169	—	—	8,502
TOTAL,	4,491,028	4,440,746	50,282	1.1	—	—
Permanent Grass,* {	For Hay,	4,936,823	4,784,895	151,928	3.2	—
	Not for Hay,	12,341,420	12,459,839	—	—	118,419
TOTAL,	17,278,243	17,244,734	33,509	0.2	—	—
Flax,	372	263	109	41.4	—	—
Hops,	44,938	46,722	—	—	1,784	3.8
Small Fruit,	82,167	80,226	1,941	2.4	—	—
Bare Fallow,	261,437	314,537	—	—	53,100	16.9
Orchards,†	250,172	247,687	2,485	1.0	—	—

* Excluding 12,742,779 acres returned as Mountain and Heath Land used for grazing in 1907, and 12,748,364 acres in 1906.

† The acreage of any Crop or Grass grown under the trees in Orchards is also returned under proper heading.

PRELIMINARY STATEMENT for 1907, compiled from the RETURNS collected on the 4th June; and comparison with 1906—*continued*.

LIVE STOCK.

DISTRIBUTION.	1907.	1906.	Increase.		Decrease.	
	No.	No.	No.	Per Cent.	No.	Per Cent.
Horses used for Agricultural purposes.*	1,115,962	1,116,505	—	—	543	0·0
Unbroken Horses:—One year and above.	313,961	315,235	—	—	1,274	0·4
" " Under one year.	126,484	136,941	—	—	10,457	7·6
TOTAL OF HORSES, . . .	1,556,407	1,568,681	—	—	12,274	0·8
Cows and Heifers in Milk or in Calf, . .	2,759,318	2,738,411	20,907	0·8	—	—
Other Cattle:—Two years and above.	1,389,282	1,426,754	—	—	37,472	2·6
" " One year and under two.	1,440,433	1,494,795	—	—	54,362	3·6
" " Under one year, . . .	1,323,486	1,350,896	—	—	27,410	2·0
TOTAL OF CATTLE, . . .	6,912,519	7,010,856	—	—	98,337	1·4
Ewes kept for Breeding,	10,277,428	10,061,104	216,324	2·2	—	—
Other Sheep:—One year and above, . .	5,194,029	5,098,876	95,153	1·9	—	—
" " Under one year, . . .	10,645,046	10,260,380	384,666	3·7	—	—
TOTAL OF SHEEP,	26,116,503	25,420,360	696,143	2·7	—	—
Sows kept for Breeding,	380,272	336,322	43,950	13·1	—	—
Other Pigs,	2,256,536	1,987,139	269,397	13·6	—	—
TOTAL OF PIGS,	2,636,808	2,323,461	313,347	13·5	—	—

* Including Mares kept for Breeding.

BOARD OF AGRICULTURE AND FISHERIES.

3, St. James's Square, S.W.

26th August, 1907.

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DEPARTMENT OF AGRICULTURE
AND
TECHNICAL INSTRUCTION FOR IRELAND.

JOURNAL.

Meeting of the Council of Agriculture—The Vice-President's Address—Warble Fly Experiments—Tests with New French Potato—Irish Seed Potatoes in England—Technical Instruction in Ballymena—Commercial Education—Field Experiments, 1907:—Barley, Meadow Hay, Potatoes, Mangels, Oats, and Turnips—Official Documents—Notes and Memoranda—Statistical Tables,

EIGHTH YEAR.

No. 2.

JANUARY, 1908.



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NOTICE.

Communications respecting the literary contents of this JOURNAL should be addressed to the Superintendent of the Statistics and Intelligence Branch, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion-street, Dublin.

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THE COUNCIL OF AGRICULTURE.

The twelfth meeting of the Council of Agriculture was held on Tuesday, 19th November, 1907, in the Royal University of Ireland, Earlsfort-terrace, Dublin.

The chair was taken at 11 o'clock by Mr. T. W. Russell, M.P., Vice-President of the Department.

The following were present :—

Representing the Department.—The Vice-President ; Mr. T. P. Gill, Secretary ; Professor J. R. Campbell, Assistant Secretary in respect of Agriculture ; Mr. George Fletcher, Assistant Secretary in respect of Technical Instruction ; Mr. R. Cantrell, I.S.O., Chief Clerk ; Mr. W. G. S. Adams, Superintendent of the Statistics and Intelligence Branch ; Mr. J. P. Walsh, Clerk in Charge of Accounts ; Mr. J. D. Daly, Senior Staff Officer ; Mr. T. Butler, Mr. J. V. Coyle, Mr. A. Kelly, Mr. John Hogan, Mr. H. G. Smith, Mr. R. H. Lee, and Mr. E. O'Neill.

MEMBERS OF COUNCIL, ACCORDING TO PROVINCES.

Leinster.

Robert A. Anderson ; Gerald J. Brenan, J.P. ; Algernon T. F. Briscoe, J.P. ; Stephen J. Brown, J.P. ; Captain Loftus A. Bryan, J.P., D.L. ; Thomas J. Byrne, J.P. ; Thomas M. Carew ; Denis J. Cogan ; Major J. H. Connellan, D.L. ; William M. Corbet ; Thomas W. Delany ; William Delany, M.P. ; Robert Downes, J.P. ; Colonel Nugent T. Everard, H.M.L. ; Peter Ffrench, M.P. ; William Field, M.P. ; Rev. T. A. Finlay, M.A., F.R.U.I. ; James Galvin ; Marcus Goodbody, J.P. ; Patrick Hanlon ; Walter M'M. Kavanagh, J.P., D.L. ; Patrick J. Kennedy, J.P. ; James M'Carthy ; Joseph Mooney, J.P. ; George F. Murphy, J.P. ; Patrick J. O'Neill, J.P. ; Charles H. Peacocke, J.P. ; William R. Ronaldson.

Ulster.

The Right Hon. Thomas Andrews, P.C., D.L. ; H. D. M. Barton, F.S.I. ; Rev. E. F. Campbell, M.A. ; Alexander L. Clark, J.P. ; George Knox Gilliland, J.P., D.L. ; Robert T. Huston, M.R.C.V.S. ; Hugh A. Law, J.P., M.P. ; John S. F. M'Cance, J.P. ; Thomas A. M'Clure, J.P. ; the Right Rev. Monsignor M'Glynn, P.P., V.G. ; H. de F. Montgomery, D.L. ; James Stewart Moore, J.P., D.L. ; George Murnaghan, M.P. ; Robert H. S. Reade, J.P., D.L. ; Colonel R. G. Sharman-Crawford, J.P., D.L. ; William Smith, J.F. ; Captain T. Butler Stoney, J.P., D.L. ; Thomas Toal, J.P.

Munster.

Captain William C. Coghlan, J.P. ; Maurice Connery, M.D., J.P. ; Thomas Corcoran, J.P. ; Edmond Cummins, J.P. ; Thomas Duggan, Patrick J. Hogan, J.P. ; William M'Donald, J.P. ; Patrick S. Manning ; Michael Mescal, J.P. ; Patrick Moclair ; the Right Hon. Lord Mont-eagle, K.P., D.L. ; Michael J. Nolan, J.P. ; Edmond Nugent, J.P. ; Cornelius O'Callaghan, J.P. ; William W. O'Dwyer ; David Leo O'Gorman ; George O'Gorman ; Hugh P. Ryan ; Timothy Sheehy ; George F. Trench, J.P.

Connought.

The Right Hon. Lord Clonbrock, K.P., P.C., H.M.L. ; John C. Conroy ; P. J. Costello ; Rev. Joseph G. Digges, M.A. ; Sir Josslyn Gore-Booth, Bart., D.L. ; Thomas G. Griffin ; Rev. P. M'Loughlin, P.P. ; Daniel Morrin ; Colonel John P. Nolan, J.P.

Mr. J. D. Daly acted as Secretary to the meeting.

The minutes of the eleventh meeting, 16th and 17th May, 1907, a copy of which had been sent to each member of the Council, were taken as read, and were signed as correct.

The Vice-President delivered his address*

At the conclusion of the Vice-President's address, Colonel Everard asked if it would be in order to discuss the question dealing with the relations between the Department and the Irish Agricultural Organisation Society, raised by the Vice-President. If so, he desired to speak on behalf of the Organisation Society.

The Vice-President said that his address was the first matter on the agenda paper, and that anything arising out of it would, of course, have precedence.

After some further discussion, on the motion of Mr. P. J. O'Neill, seconded by Mr. William W. O'Dwyer, it was decided that the question should be debated immediately after the luncheon interval.

The Council then proceeded to consider the notices of motion appearing on the agenda paper.

The Council re-affirmed the arrangement made at previous meetings whereby the speech of the proposer of a resolution was limited to ten minutes, and the speech of a member other than the proposer of a resolution, to five minutes.

* See p. 209 *et seq.*

The following resolution, proposed by Mr. Thomas W. Delany, and seconded by Mr. William W. O'Dwyer, was passed unanimously :—

“That the Royal Veterinary College is deserving of support and help from the funds at the disposal of the Department of Agriculture and Technical Instruction, but that until the Board of Governors is so formed as to give to the Department representation thereon proportioned to the contribution from the Department's funds, no further funds be paid towards the College from the Department's funds.”

The following resolution, proposed by Mr. William M'Donald, J.P., seconded by Mr. James M'Carthy, was passed unanimously :—

“That, in the opinion of this Council, the Fertilisers and Feeding Stuffs Act, 1906, requires amendment in order to make it applicable to the conditions prevailing in Ireland. Provision should be made for the application of this Act to spraying materials and all preparations required by farmers and horticulturists to ward off plant diseases and insect pests.”

The following resolution, proposed by Mr. William M'Donald, J.P., seconded by Mr. Alexander L. Clark, J.P., was passed unanimously :—

“That, in the opinion of this Council, the Department should seek legislation to enable them to control the sale of farm seeds in Ireland, as is done in other countries.”

The following resolution was proposed by Mr. Thomas G. Griffin, and seconded by Mr. J. C. Conroy :—

“That this Council call upon the Department to assist in the stamping out of Tuberculosis in Ireland, by devising a scheme by which farmers will be given an opportunity of having their milch cows inspected for tuberculosis on payment of a nominal fee.”

Mr. Marcus Goodbody suggested that the words “and others” should be added after the word “farmers” in the third line of the resolution.

Mr. Griffin accepted this suggestion, and after some discussion, the resolution, amended as follows, was put and passed unanimously :—

“That this Council call upon the Department to assist in the stamping out of Tuberculosis in Ireland by devising a scheme by which farmers and others will be given an opportunity of having their milch cows inspected for tuberculosis on payment of a nominal fee.”

The following resolution was proposed by Mr. William Field, M.P., and seconded by Mr. William W. O'Dwyer :—

“That, as experience has shown, so long as inferior, ill-bred, deformed, diseased, or closely inbred animals are allowed to propagate their breeds in Ireland, it is difficult to obtain a general improvement of live stock. We therefore recommend that measures be taken to register every stallion, bull, ram, and boar in Ireland, and that no animal will be permitted to serve except those registered, which shall be up to a certain standard of merit.”

Mr. George F. Trench moved to amend the resolution by omitting the words in the sixth and seventh lines—

“and that no animal be permitted to serve except those registered,”

and to add after the word “merit” in seventh line the words

“and publicly advertised at post offices and police stations in every county.”

The amendment was not seconded.

Mr. C. H. Peacocke moved to amend the resolution by omitting all words after the word “that” in the sixth line and substituting the words

“the owners of unregistered sires be prohibited from letting out their sires to the public.”

The amendment was not seconded.

After some further discussion, the original resolution was put and passed with one dissentient.

The Council proceeded to consider the question raised in the Vice-President's address in regard to the Irish Agricultural Organisation Society.

Colonel Everard said that he was authorised on behalf of the Society to accept the compromise that had been offered to them by the Vice-President. He then proceeded to refer to certain points mentioned in the Vice-President's address.

The following resolution was then proposed by Mr. P. J. O'Neill, and seconded by Mr. William M'Donald :—

“That, in the opinion of this Council, no further grant should be made to the Irish Agricultural Organisation Society from the Department's Endowment Fund after the expiration of the current financial year; and it is further resolved that we call upon the Department to undertake the work of agricultural organisation, and carry it out under its own direct supervision and control.”

After discussion, Mr. Thomas Andrews moved to amend the resolution by omitting all words after the word “That” in the first line, and substituting the following —

“the compromise suggested in the Vice-President's address be approved by this Council.”

The amendment was seconded by Mr. John S. F. M'Cance.

After further discussion the question was put that the words proposed to be left out stand part of the question.

On a division there voted :—

For,	.	.	.	.	.	.	20
Against,	.	.	.	.	.	.	45
							—
Majority against,	.	.	.	.	.	.	25
							—

The original resolution was accordingly declared lost.

The resolution, amended as follows, was then put as a substantive resolution and passed without a division :—

“That the compromise suggested in the Vice-President’s address be approved by this Council.”

The voting on the original resolution was as follows :—

FOR.

Leinster.—D. J. Cogan ; William M. Corbet ; William Delany, M.P. ; William Field, M.P. ; James Galvin ; Patrick Hanlon ; James M’Carthy ; Patrick J. O’Neill, J.P. *Ulster*.—Right Rev. Monsignor M’Glynn, P.P., v.g. *Munster*.—Maurice Connery, M.D. ; William M’Donald, J.P. ; Michael Mescal, J.P. ; Patrick Moclair ; Cornelius O’Callaghan, J.P. ; William White O’Dwyer ; David L. O’Gorman ; Timothy Sheehy. *Connaught*.—P. J. Costello ; Rev. P. M’Loughlin, P.P. ; Daniel Morrin (20).

AGAINST.

Leinster.—R. A. Anderson ; Stephen J. Brown, J.P. ; Captain Loftus A. Bryan, D.L. ; Thomas M. Carew ; Major J. H. Connellan, D.L. ; Robert Downes, J.P. ; Colonel N. T. Everard, H.M.L. ; Peter Ffrench M.P. ; Rev. T. A. Finlay, F.R.U.I. ; Walter M’M. Kavanagh, D.L. ; P. J. Kennedy, J.P. ; Joseph Mooney, J.P. ; George F. Murphy, J.P. ; William R. Ronaldson. *Ulster*.—Rt. Hon. Thomas Andrews, D.L. ; H. D. M. Barton ; Rev. E. F. Campbell, M.A. ; Alexander L. Clark, J.P. ; George Knox Gilliland, D.L. ; R. T. Huston, M.R.C.V.S. ; John S. F. M’Cance, J.P. ; Thomas A. M’Clure, J.P. ; H. de F. Montgomery, D.L. ; James Stewart Moore, D.L. ; George Murnaghan, M.P. ; Robert H. S. Reade, D.L. ; Colonel R. G. Sharman-Crawford, D.L. ; William Smyth, J.P. ; Captain T. Butler Stoney, D.L. ; Thomas Toal, J.P. *Munster*.—Captain William C. Coghlan, J.P. ; Thomas Corcoran, J.P. ; Edmond Cummins, J.P. ; Thomas Duggan ; Patrick S. Manning ; Rt. Hon. Lord Monteagle, K.P. ; Michael J. Nolan, J.P. ; George O’Gorman ; Hugh P. Ryan ; George F. Trench, J.P. *Connaught*.—The Rt. Hon. Lord Clonbrock, H.M.L. ; Rev. Joseph G. Digges, M.A. ; Sir Josslyn Gore-Booth, Bart., D.L. ; Thomas G. Griffin ; Colonel John P. Nolan, J.P. (45).

The following resolution was proposed by Mr. William Field, M.P. :—

“That in the opinion of this Council the Government should provide a free grant of money for the establishment of a Forestry branch in Ireland; to be controlled by the Department of Agriculture in conjunction with representatives from the County Councils; and that the amount already received from Crown and Quit Rents should be immediately transferred to the credit of the Forestry branch, and likewise that in future the revenue arising from Crown and Quit Rents in Ireland be placed at their disposal, in addition to whatever sum and yearly income may be granted for this purpose as an instalment of restitution for the overtaxation of Ireland and Government neglect of her trees, woodlands, and forests.”

The Vice-President suggested that in view of the appointment of a Departmental Committee which was at present inquiring into matters affecting forestry in Ireland, it would be better not to press the resolution.

After some discussion, Mr. Field accepted the Vice-President's suggestion, and the resolution was accordingly, by leave, withdrawn.

The following resolution was proposed by Mr. William Field, M.P., and seconded by Mr. P. J. Costello :

“That this Council requests the Government to introduce legislation to supersede the obsolete form and methods of the existing Drainage Boards, and that the arterial drainage of Ireland be forthwith commenced with an adequate subsidy from Imperial funds, as a part of the restitution due to Ireland from past and present overtaxation; and that the Arterial Drainage Board shall consist of members of the Council of Agriculture and of the County Councils.”

Mr. Reade suggested that the resolution should be amended by the omission of the words in the 4th and 5th lines “as part of the restitution due to Ireland from past and present overtaxation.”

Mr. Field accepted the suggestion.

The resolution, amended as follows, was accordingly put and passed unanimously :—

“That this Council requests the Government to introduce legislation to supersede the obsolete form and methods of the existing Drainage Boards, and that the arterial drainage of Ireland be forthwith commenced with an adequate subsidy from Imperial funds; and that the Arterial Drainage Board shall consist of members of the Council of Agriculture and of the County Councils.”

The following resolution was proposed by Mr. William Field, M.P., and seconded by Mr. Cornelius O'Callaghan :—

“That this Council reiterates its recommendation that the Irish railways should be placed under a unified management with a view to nationalization under popular control and that a copy of this resolution be forwarded to the Vice-Regal Commission.”

After some discussion, it was suggested that the resolution should be postponed pending the report of the Commission on Irish Railways.

Mr. Field accepted this suggestion, and the resolution was accordingly, by leave, withdrawn.

The following resolution was proposed by Mr. James M'Carthy and seconded by Mr. P. J. O'Neill :—

“That in order to encourage the cultivation of Wheat most suitable for milling purposes by Irish farmers, a Silver Medal be given to winner of 1st prize and a Bronze Medal to winner of 2nd prize in both Red and White Wheat classes—by the Department of Agriculture—at the forthcoming Winter Show of the Royal Dublin Society, next December,—competition to be confined to Irish farmers ”

Professor Campbell pointed out that it would not be practicable at that date to make the arrangements suggested. The Department were however, most anxious to encourage improvement in the cultivation of wheat, and had arranged a series of experiments to be carried out at different centres throughout the country.

After some discussion, Mr. M'Carthy said that he would ask permission to postpone the resolution.

The resolution was accordingly, by leave, withdrawn.

The following resolution standing on the agenda paper in the name of Mr. Stephen Heydon was not moved, Mr. Heydon being absent :—

“That the efforts made by the Department of Agriculture to promote the cultivation of barley and other cereals have proved effective, but unremunerative, in consequence of the want of competition amongst malsters and brewers ; and that the Department of Agriculture should ascertain for the farmer the best markets to sell his grain in, and keep the farmer instructed and up to date in the values of his cereals and the best markets in the United Kingdom to dispose of his produce.”

The following resolution, proposed by Mr. Patrick Hanlon, seconded by Mr. George O'Gorman, was passed unanimously :—

“That we call on the Department, in accordance with a pledge given to us, to start a stud of Irish Draught horses, and that we do not think that the question of prices should debar them from getting the best of breeds that can be procured.”

The following resolution, proposed by Mr. William R. Ronaldson, seconded by Captain Loftus Bryan, was passed unanimously :—

“That the Department should endeavour to induce the Government to purchase the horses needed for the Army direct from the farmer.”

The following resolution standing on the agenda paper in the name of Mr. William R. Ronaldson, was, after some discussion, by leave withdrawn :—

“That Clause 10 of the Department's General Scheme for encouraging the breed of horses should be modified so as to admit of at least one Clydesdale, Suffolk Punch, or Shire Stallion being placed in County Kildare, preferably in South Kildare, which is a district in which tillage farming on a large scale prevails, and where such horses are much needed.”

The following resolution was proposed by Mr. R. T. Huston, and seconded by Mr. Thomas M'Clure :—

“That as the Department's Scheme for encouraging improvement in the Breeds of Horses has failed to have the desired effect so far as Ulster is concerned, they are instructed by this Council to take into consideration the advisability of altering it in such a way as to meet the requirements of the horse breeders of that Province.”

Mr. Barton proposed that the word “ Armagh ” should be substituted for the word “ Ulster.”

The amendment, being put to the meeting, was declared carried.

The resolution as amended was then put and rejected without a division.

The following resolutions, proposed by Mr. H. de F. Montgomery, seconded by Mr. Thomas J. Byrne, were passed unanimously :—

(i) “That having regard to the importance of the dairying industry, and in order to enhance the reputation of Irish dairy produce, it is desirable that all premises where milk, its products or bye-products, are produced, received, purchased, blended, manipulated, or manufactured into articles of food, should be open to inspection

by officers of the Department ; and that the Department should have power to make and enforce regulations for the control of such places, in order to ensure that Irish dairy produce shall be produced under the best conditions."

(ii) "That the Department of Agriculture and Technical Instruction should have power to institute proceedings under the Merchandise Marks (Prosecutions) Act, 1894, similar to the power conferred on the English Board of Agriculture by that Act."

The following resolution, standing on the agenda paper in the name of Mr. Cornelius O'Callaghan was, by leave, withdrawn :—

"That a diamond boring drill for mineral prospecting be purchased by the Department and placed at the service of Mr. Lyburn, the Department's Mineral Expert, for the purpose of enabling him to attend to the demands that are being made for its use throughout the country, and in the order in which the applications come for its use in each county."

The following resolution, standing on the agenda paper in the name of Mr. Patrick J. Hogan, J.P., was proposed by Mr. Michael Mescal, J.P., seconded by Mr. Timothy Sheehy, and passed unanimously :—

"That the Department of Agriculture take the necessary steps to sink and widen the pier at Seafield, on the west coast of the County Clare, so as to afford proper facilities to fishermen there, who, in the face of unusual difficulties, saved the crew of a French vessel recently, that was cast on the rocks."

The following resolution, proposed by Mr. H. D. M. Barton, seconded by Rev. Joseph G. Digges, M.A., was passed unanimously :—

"That this Council having on 28th November, 1906, unanimously passed the following resolution :—'That, in the interests of bee-keeping in Ireland, it is desirable that the Department of Agriculture should obtain powers to deal effectually with the spread of Bee-pest (Foul Brood) in this country,'—we now request the Department to take up this matter as one of extreme urgency, in view of the very serious injury which is being caused to the industry of bee-keeping in Ireland by the ravages of Foul Brood."

The following resolution was proposed by Mr. H. D. M. Barton, and seconded by Rev. Joseph G. Digges, M.A. :—

"That at meetings of this Council notices of motion placed upon the agenda paper by members be taken up and disposed of immediately after the reading of the Minutes."

After some discussion the resolution was, by leave, withdrawn.

The following resolution, proposed by Captain Loftus A. Bryan, seconded by Colonel N. T. Everard, was passed :—

“That in view of the desirability of increasing Tillage and Winter Dairying in Ireland, the Department be recommended to devote increased attention to American agricultural methods and machinery.”

Mr. Thomas W. Delany drew attention to a proposal made by the County Longford Committee of Agriculture in regard to a reform in the Department's scheme for encouraging improvement in the breeds of cattle. The Committee were of opinion that with the consent of the Department, County Committees should be at liberty to purchase pure-bred bulls for use in their counties.

Professor Campbell explained that the proposal had been submitted to the Advisory Committee on Live Stock, but was not approved. He suggested that Mr. Delany should attend the next meeting of the Advisory Committee and discuss the matter with them.

Mr. Delany accepted this suggestion.

The Council adjourned at 5.40 o'clock.

THE VICE-PRESIDENT'S ADDRESS TO THE COUNCIL OF AGRICULTURE.

MY LORDS AND GENTLEMEN,—On this occasion the Council meets for the first time since my appointment to the Vice-Presidency of the Department, and I, therefore, desire to take the opportunity afforded by this gathering of placing before you, and, through you, before the general public, a rough sketch of the work that is being done, and the operations that are being carried forward throughout the country. I do not intend to occupy your attention at any great length. But I think you will admit, looking at the circumstances under which we meet, that I am entitled to deal with questions, affecting not alone the practical working of the Department, but affecting its policy. To a large extent the general public, through ignorance or prejudice, do not appreciate either.

When my predecessor left this chair he bespoke for me, his successor, an old friend of his own, the confidence and support of the Council. I am happy to say that, speaking after something like six months' experience, I have received nothing but kindness and the fullest co-operation, not alone from the different Boards and the staff of the Department, but from all sections of the people interested in the work throughout the country. Fortunately controversy has to a large extent been hushed. There has been a desire on the part of the people and of the Press to give me fair play. Everybody is aware that I took office at the request of the Prime Minister under special and peculiar circumstances; and, at the present moment, it is a pleasure to me that I am in a position to say on expert authority that no part of the work of the Department has suffered, and that there is but one element of public controversy remaining to be dealt with.

In the first place, I propose to give a brief sketch of the work actually being done throughout the country.

SCHEME OF INSTRUCTION IN AGRICULTURE.

During the year 1906-7 Instructors in Agriculture were employed by twenty-seven counties. The present year shows an improvement; all the County Committees having adopted the scheme for 1908. Instructors are, therefore, now at work in every county—this being the first time since the work began that an Instructor was available for, and working in, every county. In addition to this itinerant instruction,



Winter Classes under this scheme were held in 1906-7 in ten counties at twenty-six centres, the pupils admitted numbering 419. The scheme for 1907-8 has been adopted in thirteen counties, viz.—Antrim, Armagh, Carlow, Clare, Cork, Down, Kildare, Kilkenny, Sligo, North Tipperary, Tyrone, Waterford, and Wexford. Classes in these counties have been formed at thirty-two centres, and are now in progress, the number of pupils attending being estimated at 500. Whilst on this subject I may say that both in and out of the House of Commons I have heard complaints that Agricultural Instruction under the Department was, to a large extent, imparted by Scotchmen and Englishmen. I never joined in that outcry, and I now desire to say, in justice to my predecessor, that in my opinion it would have been impossible, in the earlier years of the Department, to have found trained and capable Irishmen for this work. The case is now wholly different. By the work of our Agricultural College and Stations throughout the country, by the work of institutions such as that at Glasnevin, the Munster Institute, and the Royal College of Science, it is now possible to supply the needs of the country with competent and instructed Irish men and Irish women. As a matter of fact, it was found possible to supply eight vacancies which occurred this year by men from our own Irish institutions.

In regard to live stock, the schemes of the Department were in operation in every Irish county in 1907, and similar provision has been made for the year 1908.

AGRICULTURAL COLLEGES AND SCHOOLS.

At the head of these stands the Royal College of Science. At this institution Instructors and Teachers of Agriculture are trained. Forty-three have now been trained, of whom thirty-eight are at work in Ireland. At the present time there are in the Agricultural Faculty of the College twenty-six students, for the majority of whom it is hoped that work will be found in Ireland in connection with the Department's programme. At the Albert Agricultural College, Glasnevin, which has recently been greatly enlarged and remodelled, there are fifty-seven students in residence; while at the Agricultural Stations at Athenry, Ballyhaise, and Clonakilty, which are yet in an experimental stage, there are, respectively, seven, twenty-two, and thirty students. The high reputation which the Munster Dairy School at Cork has earned in the past is being well maintained. Something like 200 applicants are constantly awaiting admission, and it has been found necessary to lessen the pressure in some degree by making provision for a somewhat similar school in the North, situated at

Loughry, near Cookstown County Tyrone. This new school opens in January next. It is an interesting and gratifying fact that four girls from the Munster Institute swept nearly all the prizes in the classes in which they were eligible for competition at the recent London Dairy Show, in which they were competing with students from every part of England and Scotland. In addition, there are girls' agricultural schools at Ramsgrange, Co. Wexford, with 30 students; Portumna, Co. Galway, 15; Westport, Co. Mayo, 15; Claremorris, 10; and Loughglynn, Co. Roscommon, 30. New girls' schools are about to be opened in Killeshandra, Co. Cavan; Clifden, Co. Galway, and Swinford, Co. Mayo. I may say here that I have felt it part of my duty since I took up office to visit as many of these institutions as possible in order that I might see them in actual working.

POULTRY AND EGG SCHEME.

During 1907 this scheme was in operation in 29 counties, Donegal, Dublin, and Limerick being the exceptions. Thirty-one counties have made provision for the scheme of 1907-8. Upon this I should like to offer an observation or two. Very many years ago I almost lost my seat for South Tyrone, an honour which I have held for twenty-two years and very highly value, because I dared to suggest that if I were a small farmer I should pay my rent out of eggs. I was roughly handled in debate, and a good many jokes were cracked at my expense, but I am quite unrepentant at this moment. Looking at all the facts in the case in Ireland, looking at the effects of climate and of foreign competition, I am persuaded that in poultry and eggs there lies an immense field for the small farmers of Ireland. I admit the difficulties of the situation. It is not always the small farmer who makes the profit. In my early days in the North of Ireland I well remember that when eggs were brought to shops they were exchanged for tea and sugar and other commodities, and if the supply was in any way large they were put down perhaps to the credit of an account. But I am persuaded that in many cases, though certainly not in all, an inadequate price is paid to the producer. The middlemen reap much of the advantage. The question of marketing the eggs is also a very large and difficult one, and it will have to receive more attention. All the same, it is a great fact that the export of Irish eggs goes up by leaps and bounds. The increase last year on that of its predecessor was £500,000, the gross export value being £2,500,000, and it is still increasing. Much the same thing can be said of poultry. Everywhere the evidence abounds that the breed of fowl has immensely improved,

that better prices are secured in the great markets of England and Scotland, the one drawback being that of packing, a drawback which surely does not pass the wit of man to remedy. I am convinced that the result of these poultry and egg schemes throughout the country has done much to bring about a great change for the better, that that change is going forward now, and that a plan of facilities for marketing the produce would be of great assistance to the people.

Other schemes in operation are the Horticulture and Bee-keeping scheme, adopted in 23 counties in 1906-1907, in 27 counties in 1907-1908; the Buttermaking scheme, adopted in 24 counties; the Cottage and Farm Prize scheme, adopted in 30 counties this year; and the Flax scheme, adopted in six counties, viz., Antrim, Donegal, Down, Mayo, Monaghan, and Tyrone.

Roughly speaking, this is a sketch of the work on the agricultural side in actual progress.

SCHEMES OF TECHNICAL INSTRUCTION.

The operations of the Technical Instruction Branch of the Department fall roughly into two large divisions, one embracing the Department's relations with the secondary schools of the country, the other including its direct operations, as well as the work administered through local authorities.

WORK IN SECONDARY SCHOOLS.

A few words of explanation are desirable as to the first of these divisions—that relating to secondary schools. The proof of the extreme unsuitability of previously existing methods may be inferred from the fact that the amount provided in the Parliamentary Estimates for 1901-2 under the Science and Art Vote was £5,200 (and the whole of this was not required), and this amount was almost wholly expended in Evening Classes. The corresponding amount provided for the present year is £36,000, of which £25,500 is provided for Day Secondary Schools. The progress made in regard to these schools is extremely gratifying. Suitable Science laboratories have been provided in over 250 secondary schools. By means of a system of Summer Courses, held all over Ireland year by year, several hundreds of secondary school teachers have been trained to give instruction, and the efficiency of this instruction is maintained by repeated Summer Courses in successive years. Last year over 14,000 pupils were under instruction in Experimental Science and Drawing, and everything points to the soundness and value of this work.

SCHEMES CARRIED ON THROUGH LOCAL COMMITTEES.

The second great division referred to deals with operations concerning instruction much more closely related to Technology, and by far the larger portion of this work is administered through the local authorities of Urban and County Councils throughout Ireland. While the work in the rural areas must concern itself largely with the staple industry, and while therefore popular interest must centre itself largely around agricultural schemes, it is recognised that there is much need to encourage the development of industries ancillary to agriculture, and this is particularly the case from the point of view of the agriculturist himself. Every county except one now has a scheme of technical instruction, and these schemes have developed in successive years until funds that were found ample four years ago, have owing to the normal development of these schemes, been found to be quite inadequate for them. The same is true with regard to the Urban schemes. While six years ago there were practically no technical schools outside the six County Boroughs, to-day almost every town with a population of over 2,000 has a school attended by large numbers of earnest students. It is true that there is no striking outward or visible sign of the existence of these schools, for the work is done for the most part in temporary buildings; but we have evidence of the usefulness and permanence of this work, and you are all aware with what enthusiasm the work is being prosecuted.

QUESTION OF WANT OF SUITABLE BUILDINGS.

The want of permanent buildings worthy of the important work to be done is severely felt. It is true that a few towns, under the pressing need for these buildings, have raised loans for the purpose, and the Department have grudgingly allowed them to make the interest and repayment a first charge against annual income under their schemes. But it will be obvious that while the efficiency will have been improved by the provision of buildings, there will, at the same time, be danger in thus diminishing the funds available for the annual maintenance of the schemes. A deputation waited on me at the Department recently, urging the importance of the question of a building grant, and I am glad to be able to state that the Chief Secretary has received with the greatest sympathy the representations I made to him on this subject, and that he will use his influence to endeavour to secure this much-needed fund. I know that the Council will be interested to hear this, as at their last meeting they passed a resolution in favour of increased funds for the work of the Technical Instruction Branch.

FISHERIES.

There is another industry the care of which is, to a large extent, cast upon the Department, which by the Act of 1899 was constituted the Fishery Authority. I refer to the fishing industry—I very much regret that I have little to say of a hopeful or pleasant character in regard to it. I frankly admit that it is the part of the work of the Department to which I have given least attention since I came into office, my time being almost wholly occupied up to the present in studying the two great branches to which I have specially referred in this address. But so far as I have considered it, the outlook is not a hopeful one. A steady and continuous decline, a constant demand for money for piers and boatslips, with which the Department is unable to comply, continual protests as to the fishery laws, and complaints of inadequate policing, these make up the staple of my communications from different parts of the country in regard to this work. I made one Parliamentary effort last Session to facilitate the building and repairing of piers and other marine works without success, although I had the entire support of the Irish Parliamentary Party and of the maritime County Councils. And I cannot say that I have great hopes of succeeding where I have already failed. But it is impossible that this great industry can be allowed to decline and go out of existence; and having mastered the details of the agricultural and technical instruction sides of the Department's work, I propose to devote a good deal of the time that will be at my disposal before the opening of Parliament to an examination of the position of this industry, and to proceed to the different parts of the coast where the need for aid and encouragement is most felt. This, I admit, is small comfort to the fisherman, or to those anxious to aid them; but as things stand at present it is all that I can promise.

During the past twelve months the “*Helga*” made captures of seven steam vessels which were considered to be illegally trawling. Proceedings were instituted in all the cases, five convictions were obtained, and fines of £25, £50, £60, £82, and £83 (and costs) were imposed. One case was dismissed, and one is pending. The Naval authorities also reported a case of alleged illegal steam trawling. Proceedings were instituted by the Department, but the case was dismissed.

I now come to questions of not less interest.

WINTER DAIRYING.

The question as to whether winter dairying—or to give it its proper title, “All-the-year-round Dairying”—will pay in Ireland is one which has never been satisfactorily answered. The Department has had the matter under consideration for many years, and a definite experimental scheme has now been decided upon which it is hoped will go far to settle this question, I may mention here that during the past two seasons the Department has itself been carrying out an experiment of this nature, on a small scale, it is true, at their Agricultural Station at Clonakilty, and this experiment is again being repeated there this year. A short time ago the Department requested a number of gentlemen who have interested themselves in the matter to come together in conference, with the object of trying to put this question on a sound basis. As a result of the conference, the Department was in a position to place a definite scheme before the Agricultural Board at their last meeting, and I am glad to say that the Board were pleased to approve of the scheme, and voted money for the purpose of giving it a trial. As a result, the Department is carrying out two sets of experiments, one in the North under the auspices of the Royal Ulster Agricultural Society, and the second in the South under the County Cork Committee of Agriculture. These two experiments are now in full working order, and it is hoped that the result will be a valuable addition to our knowledge of the subject, and that they will act as a stimulus to what all parties are agreed is necessary if our butter trade is to compete successfully in the British market with that of other countries.

I think it right to add at this point that winter dairying is only possible by a return to tillage on a considerable scale.

FORESTRY.

Whilst all this work has been progressing on well established lines, I have been engaged, in conjunction with the staff, in pushing forward experiments of a new kind. Almost my first official act was the appointment of a Departmental Committee upon the question of forestry. This Committee is intended to be a practical one. In the Order of Reference under which it sits there is no question as to the merits of afforestation. I have taken all that for granted. The object I had in view was, first of all, to check, if possible, what I call the wanton cutting down of timber in many parts of Ireland; secondly,

to find out exactly what the law permitted at the present time in regard to afforestation ; and finally, to get advice as to the best methods and the probable cost of a scheme of afforestation. The Committee is now engaged on this work. It will speedily close its labours, and will report upon the three points submitted. I hope then to be able to lay before the Government proposals that will be feasible and workable.

VETERINARY WORK.

Very soon after I came to the Department a proposal was submitted to me from the County of Wexford in regard to veterinary work. The Council are, of course, aware that since the Department was formed an Irish Veterinary College has been established, which the Department has largely assisted. In the Act of 1899, the Department was charged with the duty of providing £15,000 for the erection of this college. We have bettered our statutory instructions, having given, and with great pleasure, the sum of £26,650, with a grant of £200 a year for an indefinite period for purposes of research in connection with the diseases of live stock. The existence of this College is a great and most satisfactory fact, and I am sure we all rejoice in its success. But no one looking at the facts can fail to realise that there are great tracts of Ireland, remote from centres of population, where veterinary aid and assistance cannot possibly be secured. Cattle die and farmers lose immense sums of money, and it was a great relief to me in considering this matter when the County Committee of Wexford came forward by a deputation and proposed a scheme to meet this want.

EXPERIMENT IN COUNTY WEXFORD.

The proposal amounted to this, that the experiment should be tried in County Wexford of setting up veterinary dispensaries in these remote parts—of practically applying the principle of the Medical Charities Act to live stock. After careful consideration, the Agricultural Board approved of the scheme ; and both the County Council and the County Committee having acted most liberally, the Department was very glad to give them the financial aid that was necessary to complete the experiment. I am persuaded the experiment will be watched with great interest throughout the country. A proposal on somewhat similar lines has already been made by County Waterford. Its application to the whole of Ireland would, of course, cost money ; but that

ought not to be allowed to stand in the way of a great boon to the farmers of Ireland if it should prove to be a practicable scheme, and if there be no other plan available by which, at less cost, the same result could be secured.

IRISH PRODUCE IN GREAT BRITAIN.

With a view to pushing the sale of Irish produce in Great Britain the Department has organised at considerable expense exhibits of Irish goods in large cities and towns, such as London, Manchester, Newcastle, Swansea, and Leeds. In each case some fifty or sixty Irish firms exhibited. These exhibits have been extremely useful, have aroused much interest, and been productive of the best results; and the Department is now engaged in making arrangements for other cities and towns.

Another branch of our work in Great Britain is that of carrying on a war against the sale of foreign goods under Irish names. Lord Ikerrin who was recently appointed as Chief Inspector in Great Britain, and his staff, are engaged in waging relentless war upon this system. In many of the large towns prosecutions have taken place, and as a rule have been successful, and I cannot but believe that by continuing resolutely in this work the Department will secure for Irish produce something like fair play, which it certainly has not had in the past.

IRISH LAND ACT AND MINERALS.

In the Land Purchase Act of 1903 it was provided that minerals on transferred estates should be vested in the Land Commission, but no provision was made either for prospecting or working mines, or of leasing them to companies or individuals prepared to work them. The deadlock produced by this oversight was attempted to be remedied in the Session of 1906. The Government proposed to introduce a Bill which would have authorised the Department, which had the necessary expert staff, to take charge of this work. The Bill was never printed, because the proposal to hand over the work to the Department was objected to. Last Session a measure was introduced, the Irish Land Bill (No. 2), which authorised the Estates Commissioners to lease or otherwise dispose of these rights. Under this Act, because it is now an Act of Parliament, a conference took place only yesterday between the Estates Commissioners and the Department, and it is hoped that an arrangement will be arrived at by which the Department will be able, under the terms of the Act, to co-operate with the Estates Commissioners in securing that these mining rights shall be utilised as was intended by Parliament.

CO-OPERATION WITH OTHER DEPARTMENTS.

There is another matter to which I attach great importance, and upon which I desire to say a few words. As is known to everybody, new agricultural holdings are being created under the Land Act all over the country. Hundreds, if not thousands, of men are being taken from uneconomic patches of land, and are being placed upon what are called economic holdings, with little capital, and sometimes with less knowledge as to the working of these new and enlarged holdings. This is the work of the Estates Commissioners, and, under their powers, they can do little more than what is being done. But I am strongly of opinion that the Department has a great field before it in assisting work of this kind. My view, and I know it to be shared by others, is that the educational work of the Department should be brought into play in support of this great national scheme for benefiting the people of Ireland. These poor people, placed upon these new holdings, often with no houses, destitute of out-offices, and without capital, ought not to be left to work their own way through the difficulty. They ought to be assisted by the establishment of credit associations, by agricultural instruction, and by other means which the Department alone can supply. And I see no reason why the Estates Commissioners and the Department should not co-operate, each body doing its own work. I mention this now in order that public attention may be drawn to what I consider a real necessity, if the work contemplated by Parliament when the Land Act was passed is to succeed.

THE DEPARTMENT'S FUNCTIONS IN RELATION TO INDUSTRIES.

The advent of a new Vice-President has naturally and properly been seized by the representatives of all manner of interests to bring their claims before the Department, and I wish to take this opportunity of stating publicly the powers of the Department and the limitations which are imposed upon it. So far as agriculture is concerned, I know of no limitations. Money can be spent, and much is being well spent, with the consent of the Agricultural Board, in all kinds of enterprises in all parts of Ireland. And so far as rural industries are concerned, no impediment stands in the way of the Department's work, save perhaps the lack of a definition and the want of money. But whilst agriculture is and must remain the great industry of Ireland, there are other industries, not rural in their character, concerning which I wish to say a word.

QUESTION OF SUBSIDIES TO INDUSTRIES.

Every day the Department is pressed to give aid, financial aid, to all sorts of enterprises in the country. It is upon this point I desire to speak. The question of subsidising industries is an old one. The case for it is easily stated: "England ruined Irish industries in the past by direct legislation and other means. England ought to be made to restore what she threw down." I do not stay to argue the proposition. The first part of it is admitted on all hands. The second is a matter for Parliament, and not for the Department; and what I wish to state publicly is this. I believe that the future of this country largely depends upon two things with which this Council is deeply concerned. I premise that a course of good government is essential, but if Ireland is to prosper as a nation, we must have the agriculture of the country greatly improved, and by the application of labour, of industry, and of skill, as much must be taken out of the land as it is possible for the land to give. In other words, we must have scientific agriculture. In the second place, I do not believe that in the present condition of the world the people of Ireland can live by the land alone. We must have more. We must have small industries dotted all over the country in order to take the pressure off the main industry, namely, the land. With these two requirements satisfied—the land profitably tilled, and employment found for the young by means of small industries, emigration, so far as it is an evil, may be stayed and prosperity will follow. But the mistake people make is in thinking that the Department has the power of directly helping in this latter work otherwise than by means of technical instruction. Whether it be from a defect in the Act of 1899, or whether it was the deliberate intention of the promoters of that Act, the Department is forbidden—such is the legal construction of the Act—from assisting by subsidy any industry that is not of a rural character. I make this announcement because it is absolutely necessary to do so. The Council knows this, but the public do not seem to be aware of the fact. I give no opinion here to-day as to whether the limitation is wise or unwise. It is enough for me that it exists, and that I must administer the Act as it stands. But I am quite clear that the difficulty will have to be faced sooner or later, and that it is one for Parliament and not for the Department.

MATTERS ON WHICH LEGISLATION IS NEEDED.

It was inevitable that with the Vice-President without a seat in the House of Commons—I do not say this in any controversial spirit—Departmental legislation, some of it of a most urgent character, should

get into arrear. And I have found on examining into the matter that the work of the Department has been materially injured and delayed by the absence of amending Acts, which ought to have been pressed upon Parliament. As an illustration of what I mean, I take the Fertilisers Act. It was passed and applied to Ireland without a single word regarding Ireland being said in the debate ; and it now turns out that it is impossible to prosecute for the adulteration of spraying material, because that compound is not legally or technically a fertiliser. The adulterators, therefore, have had a free course. I hope their career will shortly be closed. This is one sample of the injury caused by want of legislation. Let me give you another. The Irish members of Parliament have over and over again raised the question of foul brood in bees. The mischief is admitted. It has spread rapidly all over the country, and has caused serious injury and loss. The method of dealing with it is plain, but it requires legislation, and legislation of a financial character which the Government alone can undertake ; and the Department being nobody's child in the House of Commons, it has lain over from Session to Session. I hope that this reproach will be impossible in the future. There are at least seven or eight questions, of which these two are typical, that ought to have been dealt with. The legislation required does not involve either party or political interests. It is of a strictly Departmental character. But I have too much experience of the House of Commons to say here that legislation of such a character will be immune from party tactics. At all events, I shall not be subject to the reproach that the interests of the Department and of Ireland have suffered from lack of attention in the House of Commons ; and Bills will be introduced next Session to remedy these wrongs.

THE IRISH AGRICULTURAL ORGANISATION SOCIETY.

In my opening remarks I stated that there was but one element of serious controversy within the department. I have had during the past six months more than one delicate question, involving both work and policy, to handle, but I confess that I approach the question of the Irish Agricultural Organisation Society and its relationship with the Department with the utmost concern and reluctance. I have heard it discussed in Parliament. I have received two deputations, one representing the traders of the country, the other representing the Organisation Society itself. I stated in the House of Commons, when the subject was discussed, that I would give my considered opinion upon it at this Council meeting. It is the only occasion upon which I can, by addressing you, address the country. And I

cannot, therefore, avoid dealing with it. At the Council meeting in November, 1906, a discussion and a division took place upon the question of the subsidy of £3,700 now being paid to that Organisation. I have heard the legality of that grant questioned in the House of Commons. I do not stay to inquire into its legality. The Auditor-General has passed it, and the responsibility is his. I have heard the good faith of Ministers questioned in the House of Commons in regard to it. I do not stay to inquire into this. Ministers are capable of taking care of their own honour. I do not intend to stray into any of these bypaths. What I desire to do is this—to arrive at a solution of the difficulty which, whilst enabling the Irish Agricultural Organisation Society to carry on its work, in its own way, will remove this question from the arena of Parliamentary debate, and will rid the Department of a standing and disturbing controversy. In approaching this question I do so without the slightest prejudice. Until I came to the Department I knew little of the Society's work, and still less of its *personnel*. I never voted or spoke in Parliament upon the question, and I came into office unpledged as to policy upon it or upon anything else. I propose to treat it now simply as a business man dealing with a business matter.

BUSINESS ASPECT OF THE PRESENT SUBSIDY.

And first I wish to say that the Department is giving a subsidy amounting this year to £3,700 for work of which I, the Vice-President, know little or nothing. No report is made to me or to the Department concerning it. It is true that two members of the staff of the Department are on the Committee of the Irish Agricultural Organisation Society. It was not always so, their appointment being quite recent; but unless I interrogate these officers I have no means of knowing anything of the work done for this large sum of money. I know nothing of how this money is spent. Apart from these two officers, one of whom devotes a very large portion of his time to this duty, I have no control over it, and I must say that I am not prepared to be responsible for a thing of this kind. Of course I could alter all this by exercising the powers of the Vice-President. I mention the fact to show the Council the business methods that have prevailed in the past, and which still prevail in regard to this grant. I could tell in ten minutes the state of any technical school in the country. I could at a moment's notice tell what any County Committee is doing. It is only as to the work of this Organisation I am in the dark. I am

utterly unable to see, upon pure grounds of business, how anybody can defend such an arrangement. Not only is a subsidy given, but the time of an officer who is paid a large salary is largely devoted to looking after this expenditure of £3,700. It is the most unbusinesslike arrangement I ever heard of.

THE PRINCIPLE OF CO-OPERATION.

Secondly, the Organisation, I believe, was formed first of all to push the co-operative movement in this country. It was declared publicly that the farmers of Ireland were being robbed by the traders, that they were paying too much for agricultural implements, that they were getting inferior and adulterated seed, and suffering in a variety of ways from the lack of competition. The co-operative movement was founded as a self-help movement, and did, I believe, most excellent service in connection with creamery work, and in other ways. And, so far as I am concerned, I desire to say plainly that I can see no objection on economic or other grounds to co-operation, or even to the pushing of co-operation by means of an organisation and a propaganda; and where co-operation is *bona fide* agricultural co-operation, necessary to enable the tiller of the soil to make his own industry pay and to meet his foreign competitors, I see no objection to the State assisting to promote this form of co-operation, here as in other countries.

CO-OPERATIVE TRADING IN COMPETITION WITH SHOPKEEPERS.

But where objection is raised is this. When, not content with the genuine work of agricultural co-operation, which is concerned with the production or manufacture or marketing of the output of the farm, they go outside the farmer's business altogether, and actually try to turn farmers into shopkeepers, with stores for groceries and general goods; when, under the Irish Agricultural Organisation Society system, creameries and other societies of farmers set up trade of this kind, and in other ways get into competition with the ordinary shopkeepers of the country, then objection is taken, and most properly taken. Now I, for one, will be no party to a penny of the Department's money going to promote co-operation of this kind. I have said already that if you want to promote agricultural co-operation it is an unbusiness-like plan to do so by subsidising an organisation like this under such a system as I have found in operation. But I say, further, when that system results in the money of the State helping, directly or indirectly, to lead farmers into competition of this type it is indefensible

on every ground. If co-operation of this type is to be pushed, it must not be done with public money. The traders and shopkeepers who vehemently oppose are citizens. They pay rates and taxes. They have to live by their business, and they cannot see that the State is entitled to come in and say to an Organisation such as this "Here is public money, these shopkeepers are not acting fairly, they are not doing right, take this money (part of which they pay), and go in and put them down." I do not think it possible, either on economic grounds or on the grounds of State policy, that such a system can stand. The State subsidises technical education, and, in addition, does many things that economists of the old school would not approve; but I am aware of no instance where the State deliberately handicaps its own citizens in their lawful calling.

THE WEAK SPOT IN THE CO-OPERATIVE MOVEMENT IN IRELAND.

In the third place, whatever it may have been possible to say for this subsidy in the earlier years of the Department's work, the same thing cannot be said now. If the movement represented by the Irish Agricultural Organisation Society is the living force which we are told it is, it surely ought now, at the end of about seventeen years, to stand on its own legs without the crutch supplied by the Department. If there are 800 Societies and 90,000 members, as we have been told, although I do not believe that there are anything like that number of effective Societies in the country, the Irish Agricultural Organisation Society ought to be able to present a better financial balance-sheet than it now shows. And, surely, these Societies do not need constant oversight and supervision. As a matter of fact, a large number of the Societies set out in the reports have long ago ceased to have any connection with the Irish Agricultural Organisation Society. Many others are practically defunct. If the Organisation Society sets such store on being a voluntary and self-help organisation, it surely ought to be able to work out that principal within itself. But this is exactly what it seems unable to do. The entire affiliation fees from Societies during the past seven years amount to—

1901	...	...	£495
1902	...	...	623
1903	...	...	600
1904	...	...	606
1905	...	...	720
1906	...	...	430
1907	(7 months)		513

whereas the State subsidy is to-day more than six times that amount and I have had to meet and to refuse an application for an additional £1,000 during the present year, in excess of the sum of £3,700 which

was voted. The subscriptions fell to £193 in 1906. An Organisation which receives so little support from its own members cannot be the healthy plant that we are told it is, and probably one cause of this is the fact that people have come to rely upon this subsidy from the Department, and accordingly decline to put their hands in their pockets.

PRESSING DEMANDS FROM OTHER SOURCES ON DEPARTMENT'S FUNDS.

In the fourth place, I wish to state that on financial grounds I believe it to be quite impossible to maintain the subsidy on its present basis. The demands for aid to the direct work of the Department through the County Committees are constantly on the increase, and I am constantly compelled to refuse requests for financial aid to most excellent and promising schemes. As an illustration of this let me say that at the last meeting of the Agricultural Board it was deemed necessary to serve formal notice upon Lord Dudley's Commission, and upon the Congested Districts Board, that it would be impossible for the Department to finance the Supplementary Schemes in the scheduled areas beyond the present year. To do this much even a sum of £10,000 had to be drawn from the Reserve Fund. Surely it cannot be contended that if the Department finds itself compelled to withdraw this aid from the most necessitous parts of Ireland, and to refuse help to the statutory bodies appointed by Parliament to work their schemes, it is either right or expedient to spend a sum approaching £5,000 a year—because this sum has been formally asked—through an outside, an autonomous organisation, no matter how excellent or expedient its work. On financial grounds, therefore, I cannot see how it is possible to continue the subsidy on its present basis.

THE ENGLISH SMALL HOLDINGS ACT.

I am quite aware of the action taken by the Government last Session in regard to the English Small Holdings Act. There can be no doubt that this measure authorises County Councils, if they think fit, to aid in the formation of Co-operative Societies for the purpose of assisting in working the Act, *i.e.*, in assisting to create and work small holdings and allotments. If the County Councils elect to spend the rates in this way in England and Wales, I have nothing to say. They are representative bodies. The people whose money they spend can control the expenditure. If Parliament will authorise Irish County Councils to do so, I modify none of my economic views, but I shall bow to the decision. The Department has received no such specific authority in this matter as has been conferred by the Small Holdings Act upon English County

Councils and the Board of Agriculture. And I shall wait with some interest to see the action of English County Councils in regard to it. But the analogy between Section 39 of the English Small Holdings Act and the action of the Department is by no means such as to influence my views as expressed to-day.

PROPOSAL AS TO SOLUTION OF DIFFICULTY.

Now I should extremely regret to recommend or to adopt any action that would put this Organisation in any serious financial or working difficulty. I say frankly that I am against the permanence of this subsidy, that, so far as I have seen them, I am not impressed with the business methods of the Irish Agricultural Organisation Society, and that there are in existence no means by which I can know much about its work. But, all the same, I would not advise any action which would suddenly pull the Society up, arrest its work, throw its officers out of employment, and generally disarrange the machine. I think such a policy would be unwise, harsh, and, in view of the past, indefensible. I have considered this question anxiously and carefully, and I have come to the conclusion that the proper way to deal with it is to give the Society notice that the subsidy cannot be continued for ever, that it cannot be considered permanent, but also to inform them that any sudden disruption of their work is not contemplated. It is a yearly grant, and must be voted by the Agricultural Board.

DIMINISHING GRANT TO I.A.O.S. RECOMMENDED.

My opinion is that the Board should be recommended to continue a diminishing grant for a period of years, at the end of which it should cease altogether. This will enable the Organisation Society to set its house in order. So far as finance is concerned, the I.A.O.S. is, in effect, at present a mere branch of the Department. Its income apart from the Department's subsidy is very small. If the public will not support it to the full extent of its work, it may be possible for the Department to take over some of the work done by the Organisation. There are portions of its co-operative work which are of a non-controversial character that can be taken over. As I have already said, I am in favour of such work, and I desire to distinguish between helping it and spending a State subsidy through the I.A.O.S., which is a very different matter. And nothing need, therefore, suffer. But I desire to say frankly that this is the fullest limit to which I can personally go. If this subsidy is continued as before, unquestionably it will renew the old controversy in Parliament. It will be challenged

in the House of Commons, and as I am not prepared to defend it in Parliament, the Council will easily understand that the continuation of a subsidy on the old basis would produce a crisis to which there could be but one end.

The Department has been the subject of one vote in the House of Commons. It will be no fault of mine if it be the subject of another. It is not a good thing for a Public Department to be constantly under the review of the House of Commons, and I earnestly advise the Council to assist in eliminating this element of controversy from our proceedings, on the basis I have suggested. Of course, I am aware that the Council has no executive power, that it is an advisory body. But the Agricultural Board expressly sent the question to the Council in 1906 for advice. The advice then given was accepted by the Board, and the subsidy was granted for one year on certain terms. The question must, therefore, be decided early in the New Year one way or the other, and I have taken the earliest opportunity of putting my views before the Council. No one, after this statement, can be in the slightest doubt as to where I stand. I will co-operate in every way with the I.A.O.S. in any re-organisation of work that may be necessary under new conditions. I am aware of their responsibilities and how difficult it is to alter arrangements. But whilst I am willing to confer with them as to methods, I am against the present arrangement, and I reiterate my belief that no business man would tolerate it for a moment in regard to his own affairs. I sum up what I have to say in these words. The Council may reject my proposed compromise and re-affirm their decision of last year. In that case the granting of the subsidy will become a question for the Agricultural Board to determine. I shall under such circumstances ask the Board to suspend all action until the judgment of the House of Commons can be taken. Should, on the other hand, my suggested compromise be adopted, I shall do my best to make it a workable and satisfactory arrangement.

CONCLUSION.

I apologise for the length of this opening statement. It has occupied more time than I could have wished, but I hope the Council will make allowance for the fact that I succeeded to a position of considerable difficulty, and that I was bound to indicate the lines upon which I propose to act. I am thankful to the Council for their patience and for their consideration, and I have nothing to add save that my earnest desire is to work so that the Department shall attain to that position which it ought to have in the minds and sympathies of the people of Ireland.

THE WARBLE-FLY.

EXPERIMENTS ON CATTLE AS TO ITS TREATMENT AND LIFE-HISTORY.

By Prof. GEO. H. CARPENTER and JOHN W. STEEN.

INTRODUCTION.

The heavy annual loss caused in Ireland through the damage done to hides by the maggots of Warble-flies makes these insects worthy of study by the Irish farmer, while the points of their life-history that still remain to be cleared up appeal to the curiosity of the naturalist. In the first issue of this *Journal* (August, 1900, Vol. I., No. 1, page 89) a short account of these insects was published. It is now generally known that we have in the British Islands two kinds of warble-fly:—*Hypoderma bovis* and *H. lineata*. The common belief is that the former lays eggs on the backs of the cattle, and that the maggots bore directly through the skin to the positions in which they are commonly found in the ensuing winter and spring. Hence the practice—strongly urged by the late Miss Ormerod (1894, &c.), and recommended in the article in the Department's *Journal* already mentioned, as well as in the Department's Leaflet No. 1—of dressing the backs of the cattle with a mixture of train oil, spirits of tar, and sulphur, with the object of preventing the fly from laying eggs. But, from the work of Curtice (1891) and others in America, it has been known for some time that *H. lineata* lays its eggs on the feet of the cattle, and that its young maggots may be found in the wall of the gullet. Recently Mr. F. V. Theobald (Vice-Principal of the South-Eastern Agricultural College, Wye), has kindly informed us that he has found young maggots of *H. lineata* in the cavity of the pharynx and eating their way through its wall. Hence it has been concluded that the young maggot must be licked into the mouth, and that thence it bores its way through the gullet and other tissues to its final position under the skin. A strong presumption is thus raised that the life-history of *H. bovis* may be similar. During recent years a Dutch veterinary surgeon, P. Koorevaar (1898), has confirmed the observations of several earlier Continental students, that young maggots of *H. bovis* may occur in the spinal canal of cattle, in the tissue around the back-bone, and in the wall of the gullet, during the winter months, as well as in the usual situation beneath the skin. The larvæ were found in the spinal canal during January, February, and March, and in the

wall of the gullet in February. The middle of January was the earliest date at which they occurred beneath the skin, and the maggots found there—undoubtedly young (2nd stage) maggots of *Hypoderma*—agreed exactly with those living in the spinal canal. Experiments were made by Koorevaar with these larvæ on dogs and rabbits. Twenty-six of the maggots introduced beneath the skin of a dog were found fourteen days later in various parts of the body, including the spinal canal and the walls of the gullet. On the other hand, young warble-maggots fed into the mouth of a dog or passed by a rubber tube directly into the gullet of a rabbit, could not be found again; apparently they had been swallowed and digested. Hence, Koorevaar concluded that the maggots reach the gullet or spinal canal after extensive wanderings through the tissues of the ox or calf, from the place where they have bored through the skin, and that they do not travel to the gullet by way of the mouth. Probably, however, the latter opinion (entrance by the mouth) is now held by the majority of zoologists who have studied the warble-fly question. The most recent writer on the subject, H. Jost (1907), failed to find either eggs or maggots on the hair or skin of numerous cattle which he examined, but he found the hitherto undescribed first-stage larvæ of *Hypoderma bovis* in the lower end of the gullet and in the first part of the stomach. He concludes, therefore, that the eggs are licked in by the cattle almost as soon as they have been laid, and that they are hatched in the food-canal. For a full summary of the various observations and conflicting theories on the subject, reference should be made to Jost's memoir and to Imms' excellent article (1906). It may be mentioned that in Great Britain *H. lineata* seems to be a far commoner insect than *H. bovis*, and it is likely that most of the observations of Ormerod and others, professedly about the latter fly, really refer to the former.

It need hardly be pointed out that the place where the eggs are laid and the path by which the maggot makes its way to its final position in the "warble" beneath the skin are questions of great practical importance, as well as of scientific interest. For, if the eggs are laid on the feet, there can be little benefit in smearing the beast's back. Consequently, advantage has been taken of the number of calves, kept for the Department's feeding experiments at Collooney, Co. Sligo, in 1904, and at the Ballyhaise Agricultural Station in Co. Cavan in subsequent years, to carry out a series of experiments and observations, chiefly by applying dressings of various kinds to different parts of the body in different batches of calves. The dressings were a carbolic "dip,"

paraffin emulsion, and the oil and tar smear commonly recommended. These were applied in some cases to the back, in others to the legs, in others all over the body. We also tried the effect of clothing the calves and of muzzling them. These experiments have been in progress for three years, and it has now been decided to publish the results. These results are so unexpected—at least as regards the practical recommendations which we feel obliged to make—that we have postponed publication from year to year. But as each year's work has strongly confirmed the results of the preceding years, we feel that no reason exists for further delay.

GENERAL RESULTS OF EXPERIMENTS.

Before giving the details of the experiments, we may summarise the general results—some of them, as mentioned above, most unexpected—at which we have arrived.

1. The various dressings that have been constantly recommended for preventing egg-laying by Warble-flies are valueless as a protection. Calves and yearlings sprayed all over every day from June to September are “struck” by the fly, and have as many warbles the next spring as animals altogether untreated.

2. The smear made of train oil, spirits of tar, and sulphur, is not only useless, but directly harmful when applied to calves, as it makes the hair come out, and renders the skin sore. The train oil seems to be the ingredient that chiefly produces these effects. This smear does little injury to yearlings or older cattle unless used very frequently, in which case it produces a dirty scurf on the skin.

3. The common Warble-fly in Ireland is *Hypoderma bovis*, not, as in England, *H. lineata*. We met with no example of the latter species until the summer of 1907, when four specimens were reared from maggots obtained from milch cows.

4. The eggs are laid most frequently on the legs. The fly now and then strikes at the shoulder, rarely at the back and ribs. Yearlings are attacked more than calves, and calves more than older cattle.

The eggs of *H. bovis* are laid on the hairs like those of *H. lineata*. But from experiments with muzzled calves we conclude that the maggot bores through the skin, and does not enter the beast's body by the mouth.

5. Although the Warble-fly can neither bite, sting, pierce the skin, nor directly harm the cattle in any way, its approach causes the beasts to gad violently in a manner never observed from the presence of blood-sucking flies.

6. As dressings applied in summer are useless, we strongly recommend the destruction of maggots in winter and spring. A determined and united effort would exterminate the Warble-fly completely in two or three years. The animals should be examined at least every two weeks, from the middle of February until the end of June, and as the warbles "ripen" the maggots should be pressed out and crushed. This practice is more certain, safer, and easier than the application of sticky or poisonous dressings to the warble-holes with the object of killing the maggots.

THE TWO KINDS OF WARBLE-FLY.

The distinction between the two kinds of Ox Warble-fly, *Hypoderma bovis*, Degeer, and *H. lineata*, Villers, have been frequently pointed out by previous writers. We give here therefore only the main points of difference between the two species. Both are hairy flies, somewhat resembling bees in appearance and flying with a slight hum. They are active only in hot sunshine, and, on account of the quickness of their movements, they are rarely observed. The maggots are known to every farm "hand," but most persons express surprise when shown, for the first time, the parent fly.

Fly.—*H. bovis* is a larger and more robust insect than *H. lineata*, the former being usually about $\frac{5}{8}$ inch long, the latter $\frac{1}{2}$ inch. In *H. bovis* (fig. 1, a.) the front region of the thorax or fore-trunk (just behind the head) is clothed densely with yellow hairs, contrasting strongly with the central region of the thorax, which is black and shining. In *H. lineata* (fig. 1, g.) there is no such marked division, nearly the whole thorax being covered with black and white hairs, leaving four conspicuous smooth lines running lengthwise, whence the name *lineata* is derived. The abdomen or hind-body is clothed in both species with whitish hairs in front and with black hairs in the middle. In *H. bovis* the tail has reddish-orange, in *H. lineata* lemon-yellow hairs. The pale hairs on the head and thorax are usually yellowish in *H. bovis*, whitish in *H. lineata*, but some of the specimens of *H. bovis* reared by us approach *H. lineata* in this respect.

Egg.—The eggs of *H. bovis* were figured many years ago (1863) by Brauer, those of *H. lineata* more recently by Riley (1892.) In both species the egg is elongate oval in shape, furnished with a strong grooved "foot," which rests on a hair of the host-animal. The slight

Warble Flies, Eggs, and Maggots.

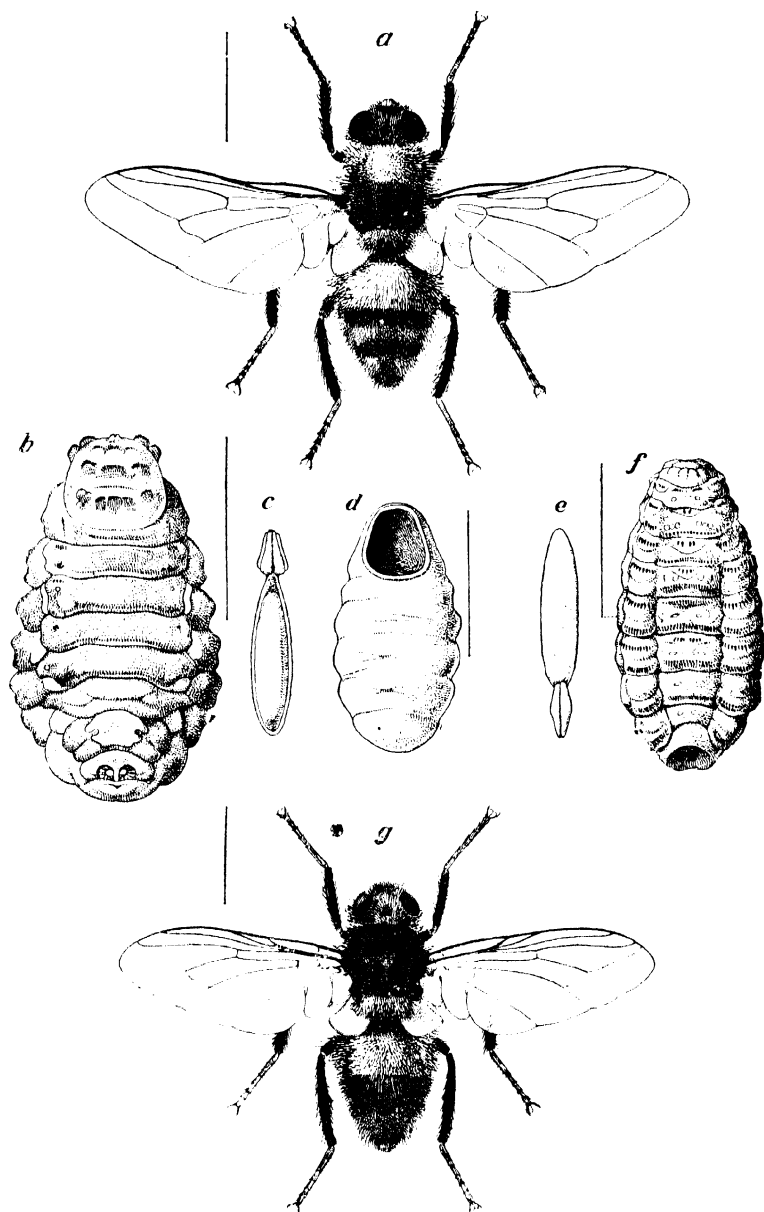


Fig. 1.—*a*, *Hypoderma bovis*; *b*, maggot of *H. bovis*; *c*, egg of *H. bovis*; *d*, puparium of *H. bovis*; *g*, *Hypoderma lineata*; *e*, egg of *H. lineata*; *f*, maggot of *H. lineata*. All the figures are magnified, the lines show the actual lengths of the objects.

From F. V. Theobald, 2nd Report on Economic Zoology. British Museum, 1904.

difference in shape in the figures of former writers (fig. 1, c. e.), are confirmed by our observations. The egg of *H. lineata* (fig. 1, e.) is relatively longer and more parallel-sided than that of *H. bovis* (fig. 1, c.), while the latter has a shorter and broader "foot."

The accompanying illustration (fig. 1) from Theobald's Report (1904), has been kindly lent by the Trustees of the British Museum.

Maggot.—The difference between the maggot of *H. bovis* and that of *H. lineata* have been pointed out by Riley and others. The former (fig. 1, b.) is the larger maggot, varying in length when full-grown from 25 to 28 mm. ($1\frac{1}{8}$ inches), being very wide towards the hinder region of the body and tapering markedly to the head. The latter is usually less than an inch long, and relatively narrower (fig. 1, f.) than the maggot of *H. bovis*. But the readiest distinction is to be found in the spiny armature. Conspicuous on all fully grown warble-maggots are the paired air-holes (spiracles) at the tail end, which are directed towards the hole in the warble and through which the insect breathes. In the *H. bovis* maggot there are no spines on the segment in front of the tail (spiracular) segment, and the segment next in front again has spines on the ventral surface only, none on the dorsal. But in the maggot of *H. lineata* all the segments in front of the tail segment bear rows of spines on both surfaces. The stronger spiny armature of the latter maggot is well shown in the accompanying figure (fig. 1, f.) contrasting with the smoother maggot of *H. bovis* (fig. 1, b.)

Hypoderma bovis the commoner fly in Ireland.—Our observations tend to show that *Hypoderma bovis* is the common Warble-fly of Ireland, and that *H. lineata* is comparatively scarce. Five maggots squeezed out of yearlings at various dates from March 18th to April 15th, 1905, prove to be *H. lineata* in the final larval stage (stage 4 of Riley and Imms). All the other maggots that we have examined are referable to *H. bovis*. A few obtained on March 11th, 1905, are in the last stage but one (stage 3 of authors). The vast majority obtained between the middle of April and the end of May are in the final stage. We thus confirm the observations of other students, that *H. bovis* "ripens" later in the year than *H. lineata*. We have mentioned above that nearly all the flies reared by us belong to *H. bovis*. Dates of the emergence of these, and details of our method of rearing them, will be found below,

EGG-LAYING.

The fact that the common Warble-fly of Ireland is *Hypoderma bovis* renders our observations on its egg-laying habits of especial interest, since nearly all the definite observations that have been published on the subject refer to *H. lineata*. We find that the eggs, like those of *H. lineata*, are laid chiefly on the legs, not, as is generally supposed, on the back. The fly strikes both at the fore and hind limbs, near the hock, more rarely on or behind the shoulder. Very seldom indeed was the fly observed to approach the back or ribs of the cattle. Most of the observations were made during the month of August, when the flies seem to be most numerous and troublesome. Many days were spent, both at Collooney and Ballyhaise, watching the cattle in an enclosure, and also tied to stakes in an open field. We could thus see what kind of fly causes annoyance to the animals.

Abundant evidence has thus been obtained that the approach of the Warble-fly, and of that fly alone, frightens the cattle, causing them to stampede. The fact that the fly can neither bite, sting, nor pierce the skin, has led many to doubt whether the common opinion that it makes the cattle "gad," may not be due to mistakes in observation. We find, however, that while the presence of numerous "cleggs" (*Hæmatopota*) does not lead to any visible disturbance among the animals, a calf, the moment he is touched by a Warble-fly, becomes frantic and goes off at a bound. The characteristic excitement of the calves, their raised tails and high jumps, become sure signs of the presence of *Hypoderma*. Why the cattle should be thus terrified by a fly which can cause them, at most, but a slight irritation, is a mystery, for it is impossible to believe that they know why the fly approaches them.

Excitement among the cattle was earliest noted by us on June 22nd, and latest on September 15th. This latter date was in the exceptionally fine and warm season of 1906. In 1904 the latest date was August 27th, and in 1905 August 15th.

EMERGENCE OF FLIES.

Like many other students of the subject, we failed to rear a single fly from "squeezed-out" warble-maggots. Although many specimens were obtained and kept during the spring of 1904, all shrivelled and died. In September, 1904, Col. J. W. Yerbury generously placed at

Warble Fly Experiments.



Fig. 2.—Trap for catching warble maggots, about two-thirds natural size.

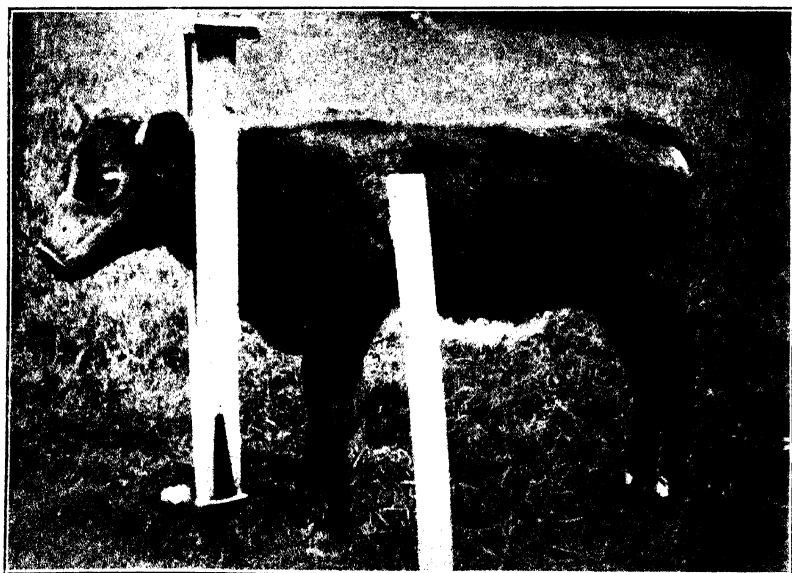


Fig. 3.—Calf muzzled and tied between stakes. Photograph by G. O. Sherrard.

our disposal some valuable MS. notes which he had made on the subject and called our attention to the method of "sleeving" adopted by Bracy Clark ninety years ago for rearing the flies. A short, descriptive extract from Clark's memoir of 1815 may be of interest to modern naturalists and farmers :—

" During the months about which time the larvæ are found fully grown, and about to quit their habitations, which can be known by the superior size of the abscess, and especially the increased diameter of the external opening : such being selected for the experiment, we remove the hairs round the tumour to a considerable distance with a pair of scissors, as close to the skin as may be ; and a piece of leather, thickly spread with pitch, being provided, through the centre of which a hole is cut about the size of the finger, and into this a small gauze pouch or bag is inserted hanging out an inch or two from the leather ; this plaster with its pouch is then placed upon the skin, to which from its warmth, which is very considerable, it readily adheres, the pouch being opposite the opening. Whenever the insect makes its way out and falls from the abscess it is caught by the bag, in which, as it cannot escape, it remains until removed by the person looking after them. The larva thus obtained, as it is full fed, will hardly fail to produce a perfect fly ; it is only necessary to put it into a pot with some loose light earth for it to change upon."

We first tried to catch the maggots in "sleeves" made of muslin stitched to a chamois leather flange, but we found that the leather became quite hard and unworkable after it had been wetted or glued. The most satisfactory form of trap proved to be a structure shaped like a cavalier's hat, the "crown" about 2 inches in diameter and $1\frac{1}{2}$ inches deep, made of wire gauze and stitched firmly into a wide brim, 6 inches diameter outside, and made of stout cloth or canvas, cut radially into about two dozen narrow strips. Attached with fish glue, these strips adhere to the beast's back, and hold the wire-gauze cage firmly in position just over the warble hole (see fig. 2).

With cages made on this principle, fastened to the skin of several yearling and two-year-old cattle, we obtained during the spring and summer of 1905 and 1906 a number of healthy maggots. They were placed in the open air within a small wooden enclosure like a garden cool frame, covered either with fine wire-gauze or with glass. The greater number of the maggots pupated and the flies in due time emerged. During 1905 eleven maggots were found in the "sleeves"

at dates ranging from May 27th to June 17th, while a belated one occurred several weeks afterwards—on July 3rd. The flies from most of these appeared between July 19th and the end of the month. In 1906 the season was somewhat earlier, maggots emerging from the cattle as early as May 18th, and the flies being fully developed by June 25th or 27th. It may be concluded from these dates, that the pupal stage lasted from six to eight weeks. This is much longer than the period—25 to 26 days—of the pupal stage, as observed by Miss Ormerod (1904, p. 11). All the flies reared during 1905 and 1906 were examples of *Hypoderma bovis*. In the spring of 1907, maggots were obtained from milch cows from the 14th to the 16th of April. These pupated, and by the end of May had developed into flies which proved to be *H. lineata*.* The time between the emergence of the maggot and the completion of the transformation was here also about seven weeks.

EXPERIMENTS WITH DRESSINGS.

Our object in applying dressings to the cattle was to find out (1) whether they were more effectual applied to the legs or to the back, thus gaining information that would be of practical value to the farmer, and that would indicate the place of egg-laying; (2) what dressing is the most effectual; and (3) how often the dressing ought to be applied. As already mentioned, the results are entirely negative. Daily dressings of different kinds applied all over the animal are equally useless. This result is so contrary to generally received opinion, that we feel bound to give our evidence in support of it in some detail. We find, however, that we are only confirming views recently enunciated (1906) by Professor Ostertag,† of Berlin. Mr. Theobald also informs us that he considers the dressings useless for stopping egg-laying.

EXPERIMENTS WITH CARBOLIC DIP.

First we may tabulate the results obtained with a carbolic "dip" which was used on the calves through each year of our experiments.

* We have to thank Mr. E. E. Austen, of the British Museum, for confirming our identification of these specimens.

† At a meeting of the Königl. Preuss. Landes-Oekonomie Kollegium. See *Landwirtschaft. Jahrbuch*, 1906, *Ergänzungsband*, i.

Considering the small number of animals similarly treated in any one year, it will be seen that the results show a very close correspondence.

CARBOLIC "DIP" DRESSINGS.		Number of Animal.	Number of warbles, April, 1905.	Average.
ON BACK.	A. Three Calves washed thoroughly on back once a week, May-Sept., 1904.	16	8	8.33
		18	4	
		19	13	
	B. Five Calves rubbed on back with a slightly dampened cloth once a week, June-Sept., 1905.	21	9	8.20
		23	6	
		24	7	
		25	7	
		26	12	
	C. Four Calves rubbed on back twice a week, June-Sept., 1905.	32	10	8.25
		33	0	
		34	8	
		36	15	
	D. Six Yearlings washed on back twice a week, June-Sept., 1905.	1	38	24.66
		10	18	
		13	28	
		18	13	
		19	19	
		34	32	
ON LEGS.	E. Four Calves washed on legs once a week, May-Sept., 1904.			7.25
		22	10	
		23	5	
		24	6	
	F. Four Calves sprayed on legs once a week, June-Sept., 1905.	25	8	6.25
		42	6	
		43	5	
		44	6	
	G. Five Calves sprayed on legs twice a week, June-Sept., 1905.	45	8	6.20
		51	2	
		52	8	
		54	12	
		55	9	
	H. Four Yearling Bullocks sprayed on legs twice a week, June-Sept., 1905.	56	0	19.75
		4	19	
		15	7	
		31	25	
		40	18	

CARBOLIC "DIP" DRESSINGS.		Number of Animal.	Number of warbles, April, 1905.	Average.
ALL OVER.	I. Four Calves sprayed all over once a week, May-Sept., 1904.	26 27 28 29	9 13 11 10	10.75
			Number of warbles, March-May, 1906.	
	J. Four Calves sprayed all over once a week, June-Sept., 1905.	1 3 4 6	3 0 8 13	6.0
	K. Three Calves sprayed all over twice a week, June-Sept., 1905.	11 13 14	14 9 0	7.66
			Number of warbles, March-May, 1907.	
	L. Seven Calves sprayed all over twice a week, May-Sept., 1906.	1 1A. 2A. 32 33 34 39	5 5 14 21 12 23 7	12.43
	M. Four Calves sprayed all over daily, May-Sept., 1906.	5A. 13A. 24A. 28A.	4 36 9 11	15.00
			Number of warbles, March-May, 1906.	
	N. Six Yearling Bulls sprayed all over twice a week, June- Sept., 1905.	9 11 20 22 30 38	15 41 13 17 27 11	20.66
			Number of warbles, March-May, 1907.	
	O. Four Cows, suckling Calves of Lot L, sprayed all over twice a week, May-Sept., 1906.	11 37 42 45	4 35 2 5	11.5
	P. Four Cows, suckling Calves of Lot M, sprayed all over daily, May-Sept., 1906.	17 28 36 38	6 1 5 12	6.0

The greater liability of yearlings (batches D, H, and N) to warbles, as compared with calves (batches A, B, C, E, F, G, I, J, K, L, and M), is clearly shown by these figures.

EXPERIMENTS WITH OIL AND TAR SMEAR.

The smear used in these experiments is that recommended in the late Miss Ormerod's reports, and in the Department's Leaflet No. 1. The mixture consists of train-oil (1 quart), sulphur (4 oz.), and spirits of tar (4 oz.).

Only in the first summer (1904) did we use this smear for the young calves, because we found that its application caused the animals to shed their hair freely, and produced soreness of the skin. In order to test which ingredient of the smear was responsible for this damage, we tried the following experiment, treating the two sides of the same beast with different substances.

The treatment and results may be tabulated thus :—

Date, 1904.	Calf No. 51.		Calf No. 52.	
	Near side.	Off side.	Near side.	Off side.
June 20, .	Train oil applied.	Spirits of tar applied.	Sulphur and train oil applied.	Complete smear applied.
June 29, .	Hair coming quite off, and skin sore to touch.	Very little hair coming off; skin slightly sore.	Hair quite cleared off; skin very sore.	Nearly all the hair off; skin sore.

From the results, we concluded that the train oil must be considered as the injurious substance, and after the end of July, six of the calves under the treatment (Nos. 4, 5, 8, 9, 14 and 15 of the list below) were dressed with spirits of tar only. The result (or rather want of result) as far as warble-prevention is concerned, was not affected by this change. We found that the new growth of hair which came on the calves after the "moult" caused by the early applications of the smear, was not liable to be shed as the result of later applications. But the injury to the skin and the loss of hair are so serious, that we must regard the smear as distinctly harmful to young calves; the animals dressed with it do not thrive so well as the untreated animals. The spirits of tar, applied alone, though less injurious than the complete smear or the train oil, makes the hair sticky and matted, and spoils the animal's condition.

The freest application of the complete smear does comparatively little harm to yearlings or older cattle, on which we used it extensively in

the summer of 1906, without however finding it of the least use for preventing warbles.

TAR AND TRAIN-OIL SMEAR.		Number of Calf.	Number of warbles next Spring.	Average,
ON LEGS ON BACK.	Q. Three Calves smeared on back and flanks once a week, May-Sept., 1904.	2	9	7
		4	7	
		5	5	
	R. Four Calves smeared on legs once a week, May-Sept., 1904.	6	19	13
		7	13	
		8	15	
ALL OVER.	S. Three Calves smeared all over once a week, May-Sept., 1904.	9	5	15.38
		13	13	
		14	17	
	T Six Yearling Heifers smeared all over twice a week, May- Sept., 1906.	15	16	9.66
		4	6	
		20	13	
		32	12	
		34	13	
	U. Six Yearling Heifers smeared all over every day, May- Sept., 1906.	54	6	30.16
		55	8	
		A.06	9	
		B.06	39	
		C.B	19	
		11	39	
		24	10	
		51	65	

This last batch of heifers gives convincing proof of the uselessness of the smear, unless we consider with some students of the Warble-fly problem, that the maggots may take more than a year to come to maturity, so that some of the warbles found on these animals in the spring of 1907 were due to eggs laid in 1905. We have, however, no evidence at all in support of this view. Our conclusion is that the application of "smears" or "dips" for preventing egg-laying should be no longer recommended to farmers.

EXPERIMENTS WITH PARAFFIN EMULSION.

In the first year of our experiments (1904) we tried the effect of paraffin emulsion—a substance recommended by American workers—in addition to the dip and the smear. The emulsion was made with the usual proportions of $\frac{1}{2}$ lb. of soap dissolved in a gallon of hot water and churned up with two gallons of paraffin, the emulsion being diluted with eight times its bulk of water before application with an Eclair sprayer.

The results differed so slightly from those obtained with the use of the smear and the dip, that we did not think it worth while to repeat the experiment in subsequent years.

PARAFFIN EMULSION DRESSINGS.		Number of Calf.	Number of warbles, April, 1905.	Average.
ON LEGS.	V. Three Calves sprayed on legs once a week, May-Sept., 1904.	36	7	12.33
		38	14	
		39	16	
ALL OVER.	W. Four Calves sprayed all over once a week, May-Sept., 1904.	42	18	11
		43	12	
		44	10	
		45	4	
	X. Four Calves sprayed all over once a fortnight, May-Sept., 1904.	46	16	14
		47	21	
		48	18	
		49	6	

EXPERIMENTS WITH COVERS.

Along with the application of dressings, we carried out experiments with a view of determining the place of egg-laying, by covering either the backs or legs of certain cattle with linen, cotton, or other cloths. Through the summer of 1904, four calves were kept from May 30th until September 12th with linen or calico covers on their backs and sides, the skin from front of shoulder to rump being thus completely protected. The result was as follows :—

CLOTHING EXPERIMENTS.	Number of Calf.	Number of warbles, April, 1905.	Average.
Y1. Four Calves covered with linen on back and sides, May-Sept., 1904.	32	2	7.5
	33	5	
	34	14	
	35	9	

During the next year, 1905, this experiment was continued and extended. We again had four calves covered with linen or cotton over the back and sides. We also had four whose legs were covered by a kind of trouser fixed by braces across shoulders and rump, and fastened closely around the limb just above the hoofs. Finally, one calf was

completely clothed, both back and legs being covered. We hoped to learn much from these experiments, but we were disappointed to a great extent by the impossibility of keeping the trousers constantly on the animals. Our first difficulty was with the material; we began with strong cloth garments, but these were useless, often becoming badly torn after a single day's wear. Then we procured leather leggings, and these stood much better, but no method of fastening could ensure their remaining constantly on the calves. The animals frequently got into drains and soft places, and worked the covers off, so that we could not be sure that any animal's legs were completely protected during all the visits of the fly. Nevertheless, the results of the experiment are instructive:—

CLOTHING EXPERIMENTS.		Number of Calf.	Number of warbles, March-May, 1906.	Average.
ON BACK.	Y2. Four Calves covered on back and sides, June-Sept., 1905.	7	9	10
		8	18	
		17	6	
		18	7	
ALL OVER.	Y3. One Calf clothed all over, June-Sept., 1905.	38*	0	0
ON LEGS.	Y4. Four Calves with legs covered, June-Sept., 1905.	47	3	3.5
		48	3	
		57	4	
		58	4	

We consider these figures instructive, because they show that even the imperfect and discontinuous protection of the legs that we were able to ensure, brought about a marked diminution in the number of warbles in the last named batch, as compared with those calves whose backs only were protected. The animal completely clothed was, we believe, entirely free from warbles. And the results of this experiment support strongly the result of our observations in the field—that the legs are chosen by the fly for egg-laying much more frequently than the back. The above figures indicate that the fly strikes the legs three

* Six Calves were set apart for this treatment, but only one of them survived until the Spring. Unfortunately, this animal could not be certainly identified at the final count of warbles on May 12th.

times more frequently than the back or sides, and had the legs of the four calves in the last batch been continuously protected, the difference might well have been still more marked.

During the summer of 1906 we again started the experiment of covering the legs of six calves with leather trousers, but the animals were more restless and showed more objection to wearing garments than those of the preceding summer. By the middle of July we found the trousers so frequently coming off, that we abandoned the attempt as useless.

EXPERIMENTS WITH MUZZLED CALVES.

During our first two years' work, the possibility occurred to us that, if the warble-maggot be really taken in by the mouth, a "dressed" beast might lick an undressed one on which eggs had been laid, and so become infected. During our last season therefore (1906) we arranged to have all the untreated cattle in fields separate from those that were dressed either with dip or with smear. We were anxious also to devise some method of testing the theory of entrance by the mouth, and we were most grateful when the Rev. J. G. Digges, in conversation on the subject with one of us, suggested muzzling some of the calves, so that they could lick neither themselves nor other animals. It was, of course, easy to keep calves muzzled when out on the pasture; the difficulty arose when we considered that they must be prevented from licking themselves at any time, and that nevertheless they must be fed. We decided finally to keep six calves wearing leather or basket muzzles which made licking an impossibility, turning them out in the same field as the untreated cattle by day. At night the necks of these calves were tied between specially constructed stakes and their forelimbs were clothed with leggings, so that, while they could feed, they were unable to lick themselves. The leggings may have occasionally slipped off, but they were used only as an extra safeguard, the position of the animal when tied preventing any part of the body except the hoof being brought within reach of the tongue; and for that to have happened the foot must have been put through the narrow opening between the stakes. The accompanying illustration (fig. 3) shows one of the calves wearing the muzzle, and with its neck fastened between the stakes. They were, at times, tied up thus when in the field, so that observations on egg-laying by the fly might be the more readily made.

The muzzling and tying precautions were continued until early in November, by which time we thought all possibility gone that live eggs could remain on the cattle. The discomfort undergone by these calves

must have been considerable, but none of them appeared to suffer in health by the unnatural conditions, and the experiment appeared to us to be a crucial test of the method by which the maggot gains entrance to the animal's body. As all but one of these calves showed warbles in the spring of 1907, we consider that they afford strong support to the old view of the method of entrance directly through the skin.

MUZZLING EXPERIMENTS.	Number of Calf.	Number of warbles, March-May, 1907.	Average.
Z. Six Calves muzzled in field by day, and tied between stakes by night, May-November, 1906.	4A.	16	15.33
	5A.	0	
	6A.	12	
	7A.	27	
	8A.	27	
	10A.	10	

RESULTS WITH UNTREATED OR "CONTROL" ANIMALS.

Each year a number of animals were, of course, left untreated, that the results with them might be compared with those obtained with the beasts that were treated with the various dressings. We give the numbers of warbles that were found in all these animals in each ensuing spring, that it may be seen how slightly they differ from the numbers on the "dressed" animals. A comparison between the numbers of warbles in yearlings, two-year-olds, and older cattle is also instructive.

CONTROL EXPERIMENTS.		Number of Animal.	Number of warbles next Spring.	Average.
CALVES.	Nine Calves untreated, Summer, 1904.	1	14	12.55
		10	12	
		11	9	
		20	23	
		21	13	
		30	11	
		31	11	
		40	10	
		41	10	
	Three Calves untreated, Summer, 1905.	9	5	7
		19	9	
		29	7	
	Six Calves untreated, Summer, 1906.	17	46	10.83
		19A.	13	
		27A.	0	
		31	6	
		36	0	
		37	0	

CONTROL EXPERIMENTS.		Number of Animal.	Number of warbles next Spring.	Average.
YEARLINGS.	Six Yearling Bulls untreated, Summer, 1905.	2	36	24.66
		21	41	
		36	15	
		44	11	
		45	23	
		46	22	
	Five Yearling Heifers untreated, Summer, 1906.	17	26	31.20
		27	21	
		33	16	
		57	71	
		58	22	
COWS.	Twenty-six Cows untreated, Summer, 1905.	2	3	3.30
		3	2	
		4 (Ayrshire)	3	
		4 (Shorthorn)	0	
		5 (Ayrshire)	17	
		5 (Shorthorn)	1	
		6 (Ayrshire)	5	
		6 (Shorthorn)	1	
		7	0	
		8	0	
		12	2	
		13	2	
		15	0	
		16	0	
		19	7	
		20	6	
		21	2	
		22	0	
		23	2	
		24	0	
		25	9	
		26	1	
		27	7	
		31	12	
		32	1	
		33	3	
	Seven Cows untreated, Summer, 1906.	0	3	3.43
		5	6	
		14	5	
		15	4	
		16	2	
		30	0	
		34	4	

The comparative immunity of the cows to warble-attack is strikingly shown by these tables, and it will be seen, of the twenty-six cows untreated during the summer of 1905, seven, in the spring of 1906, showed no warbles at all, five had only one warble each, five only two warbles each, and three only three warbles each. The apparent liability of yearlings to attack, on the other hand, is shown by the high average number of warbles appearing the next spring, when the animals are two-year-olds.

The uselessness of dressing yearlings is shown by comparing the figures in the table just given, with the results obtained with the treated batches of yearlings, D, H, N, T, U, above (pp. 235-6, 238).

CONCLUSION AND RECOMMENDATIONS.

As already stated, we have delayed publishing these results on account of their antagonism to generally received opinions until we could feel satisfied that convincing evidence had been obtained. We are puzzled in comparing our observations with the definite statements made by numerous practical men in England and elsewhere (see, for example, Ormerod, 1894), of the benefit derived from dressing cattle. It is possible that measures found to be useless at Collooney and Ballyhaise may be effectual in other places. But we would point out that one may watch for many days without seeing the cattle "gad," and that this fact may partly account for the alleged benefit of the dressings. Further, we believe that most stock-owners who dress their cattle in summer, also carry out the systematic destruction of maggots in winter and spring. And we are strongly of opinion that the benefit in reducing the number of Warble-flies that must undoubtedly result from the latter practice, has been partly credited to the former.

The practical outcome of our enquiry, then, is that farmers and stock-owners should concentrate their energies on destroying the maggots while they are in the warbles on the beasts' backs during winter and spring. Two methods, as is well known, have been recommended for doing this :—(1) squeezing out the maggots, and (2) applying some poisonous or greasy substance to the warble-hole. We confidently follow Theobald (1904) in recommending the former as simpler and surer.

During the spring of the present year (1907) experiments were tried at Ballyhaise to test the effects of various substances in killing the maggots in the warbles. Our best thanks are due to Mr. W. F. Prendergast for the care with which he carried out these tests. Five yearling cattle with an average number of warbles were chosen and so tied up that they could not lick off the dressings. The hair around the warbles was cut before the dressings were applied. Seven different substances were used—turpentine, paraffin, M'Dougall's smear, cart-grease, cart-grease and sulphur, tar, butter-milk and salt. Of these the turpentine and paraffin were very difficult to apply, the animal kicking and plunging so that three men were required to hold it. Tar, M'Dougall's smear, and the salt and butter-milk mixture were easy to apply. Cart-grease only remained a short time over the warble, as

the heat of the animal soon melted it. Cart-grease and sulphur mixture was also unsatisfactory, but melted off less readily than the cart-grease alone. The dressings were applied on April 14th, and the results noted on April 29th, the maggots being then squeezed out and examined as to their condition. The appended table gives a summary of the results.

Dressing applied.	Number of warbles dressed, April 14th.	Number of times dressed.	Number found, April 29th.		Effect of the dressing on the back of the animal.
			Living	Dead.	
Turpentine, .	3	2	1	2	Back very sore; skin began to crack and peel. Animal unsightly.
	2	1	2	0	
Paraffin, .	3	2	2	1*	Back very tender; where paraffin trickled down back hair fell off. Animal unsightly.
	2	1	2	0	
Cart-grease, .	3	2	3	0	No harmful effect on back.
Cart-grease and Sulphur.	2	1	0	2	Animal very unsightly; back badly cracked around warbles, and yellow matter could be pressed out.
Tar, . . .	2	2	1	1	Back not injured.
	2	1	2	0	
McDougall's,	3	2	1	2†	Back slightly tender.
	2	1	1	1	
Salt and buttermilk.	2	1	2	0	No effect on back.

* Crushed by the animal rubbing itself.

† One of these had been crushed by the animal rubbing itself.

It will be seen from this table that of the 26 warble-maggots operated upon only nine were dead a fortnight later, and two of these had been crushed by the rubbing movements of the beasts. The cart-grease and sulphur mixture can apparently be depended upon to kill the maggots, but it is hard to apply, renders the animal very unsightly, and injures the skin of the back. Altogether, we do not hesitate to declare that the practice of squeezing out the maggots is by far the best method to adopt. The death of the insect becomes certain, and any possible harm from the presence of a dead maggot in the beast's back—supposing that the maggot is killed by the applications—is obviated. During the

spring of 1907 no fewer than 2,090 maggots were squeezed out of the 194 head of cattle on the Ballyhaise farm—an average of nearly eleven maggots from each beast. We await with interest the result of this treatment to be shown in the spring of 1908. From our experience, we believe that a squeezed-out maggot will perish whatever be done with it; but most practical men will prefer to remove all possible doubt by crushing it.

In conclusion, we would urge that to deal practically with this pest is the part of farmers and stock-owners themselves. At the time of year when cattle are most of all under control and observation, all the Warble-flies in the country are in the maggot stage just beneath the skin of the beasts' backs, where they can be readily found and destroyed. With willing labour and hearty co-operation the farmers of Ireland can practically solve the warble problem. To be effective, the work of maggot destruction must be thorough. Every farm on which it is carried out will be benefited; but the best results will be obtained from general action over a wide district.

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REPORT ON TESTS MADE WITH THE NEW
FRENCH POTATO,
SOLANUM COMMERSONII VIOLET, AND THE
"BLUE GIANT."

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The name *Solanum Commersonii* was given in the year 1816 to a wild species of potato found growing in May, 1767, near Monte Video, in Uruguay, South America, by M. Commerson, and sent home to France by him. It is possible that this wild species, or a cultivated variety of it, was introduced into Europe nearly two centuries previously, and it is certain that it has been re-introduced on three subsequent occasions. The last of these was in 1896, and since then the plant has been grown each year in the Botanic Gardens of Marseilles. Under cultivation it has shown a certain amount of amelioration, but at present it has no commercial value as a farm plant. From Marseilles, tubers have been distributed to various places in Europe for experimental purposes. The Department of Agriculture and Technical Instruction for Ireland obtained some of these in 1903, and conducted trials with them in 1904 and 1905, but the results did not warrant their recommendation for planting purposes.

Amongst other growers who experimented with this wild species was M. Labergerie, of Verrieres, in West Central France. A certain amount of amelioration also occurred there, but the most remarkable effect of his cultivation was the production of a number of distinct varieties of sports. Only one of these, however, has up to the present become definitely "fixed," and that is a blue or violet skinned variety which made its appearance amongst his cultures of the wild species in 1901. This sport, variety, mutation, or whatever it may be termed, is now on the market and is called *Solanum Commersonii* Violet, and must not be confused with the wild species from which it apparently sprang.

Considerable controversy has lately been aroused as to whether this Violet variety is really a new one or not. A number of experienced growers both in France and England are of opinion that the variety is not new, but is identical with one introduced by Herr Paulsen, of Bavaria, in 1882, and known as "Blue Giant." It is supposed that by some accident a "Blue Giant" plant must have occurred amongst M. Labergerie's cultures of *Solanum Commersonii*. This is possible, but the resemblance between these two plants may conceivably be explained on other grounds. In a Foreign Office report received by the Department and quoted in the correspondence columns of the *Irish Farming World* of 3rd May, 1907, it is stated that the "Blue Giant" originated from *Solanum Commersonii* four hundred years ago, and that its history can be definitely traced back through a variety grown in Virginia, U.S.A., in the days of Sir Walter Raleigh. If this be true, then both the "Blue Giant" and M. Labergerie's Violet variety have a common ancestor in the wild *Solanum Commersonii*, and it is quite possible that a sport which occurred four hundred years ago in America has simply repeated itself in France at the present day. Herr Paulsen informs us that "Blue Giant" is the result of a cross between "Funo" and "Adirondak," and he himself does not believe that the "Blue Giant" has anything to do with *Solanum Commersonii* Violet. Nevertheless, the name "Adirondak" is suggestive of an American connection. The practical bearing of the question is this:—last season the price of *Solanum Commersonii* Violet "seed" was more than five times that of "Blue Giant," and no one wishes to pay £5 for an article when the same thing, only under another name, can be got for £1.

The following are the principal advantages claimed by M. Labergerie on behalf of his Violet variety as set forth in a **Claims of S.C. Violet**, leaflet issued by his agent, Madame Forgeot, of Paris:—

- (1.) Very large yield.
- (2.) Preference for cold, very cold and even marshy soils.
- (3.) A power of resistance to disease approaching complete immunity.
- (4.) Perfection as to taste and nutritive value.
- (5.) Resistance to frost.

These claims, and a few other minor ones not mentioned here, would if justified, undoubtedly stamp this potato as being one worth the attention of all growers in this country. In continuation of their experiments, the Department grew a small quantity of the Violet variety at the Albert Agricultural College, Glasnevin, in the season of 1906. The results, however, were indifferent, and the tubers raised did not store well, some of them having become infected with the blight fungus (*Phytophthora infestans*.) Some doubt was also raised as to the authenticity of the original tubers, and it was therefore decided to make more extended experiments with "seed" of undoubtedly correct origin in the following season.

The objects which the Department had primarily in view in their experiments during the season of 1907 were:—

<p>Results of Experiments in 1907.</p>	<p>(1.) To test the claims advanced on behalf of this potato; (2.) To compare it with the "Blue Giant" variety. "Seed" of <i>Solanum Commersonii</i> Violet was obtained by</p>
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the Department—(a) from M. Labergerie's authorised agent direct; (b) as imported direct as well as home grown from Mr. Bell, of Banbridge, Co. Down, and Messrs. Sutton and Sons, of Reading. "Seed" of "Blue Giant" was obtained directly imported from the raiser Herr Paulsen, through Messrs. Hogg and Robertson and through Messrs. Sutton and Sons, and the latter firm also supplied home-grown "seed" of this variety. The experiments were carried out under the supervision of the Department's own officers at

- (1.) The Albert Agricultural College, Glasnevin, Co. Dublin.
- (2.) The Agricultural Stations in Ballyhaise, Co. Cavan; Athenry, Co. Galway, and Clonakilty, Co. Cork.
- (3.) Selected places in the West of Ireland, in counties Donegal, Mayo, Galway and Kerry, under the control of the Department's Agricultural Overseers.

In this way the experiments have extended over the length and breadth of Ireland, and thus variations in soil and climate are included in their scope. In the west, special attention was devoted to cultivation in boggy soils, for which *S.C.* Violet is said to be peculiarly suitable. The methods of cultivation were not uniform throughout, but were those ordinarily in vogue in the various districts in which the experiments took place.

The accompanying table gives the yield calculated per statute acre for each of the two varieties produced on the plots at the Albert Agricultural College, Glasnevin:—

No.	Variety.	Source of "Seed."	Yield per statute acre.
A.	<i>Solanum Commersonii</i> Violet.	From Messrs. Sutton & Sons, grown at Reading in 1906.	T. C. Q. 7 0 0
B.	" " "	From Mr. Bell, Banbridge, grown in Ireland in 1906.	14 2 3
C.	" " "	From Mr. Bell, Banbridge, imported direct from France, in 1907.	14 11 2
D.	" " "	From M. Labergerie's Paris agent, imported direct by the Department in 1907.	13 2 3
D 1.	" " "	From Messrs. Sutton & Sons, imported direct from France in 1907.	14 5 3
E.	Blue Giant.	From Messrs. Sutton & Sons, grown at Reading in 1906.	8 8 2
F.	" "	From Messrs. Sutton & Sons, direct from Herr Paulsen, 1907.	13 5 3
G.	" "	From Messrs. Hogg and Robertson direct from Herr Paulsen, 1907.	11 2 3

GENERAL REMARKS :—The plots were planted on May 2nd and the crop lifted on October 21st, 1907. Each plot occupied two drills each 27 inches wide and 10 yards long. The treatment consisted in all cases of a dressing of farmyard manure ploughed in during the previous autumn, and an application of artificial manures in accordance with the Department's formula, given at the time of planting. The soil is a somewhat stiffish clay and the plots were sprayed twice.

From the above figures it may be seen that on the average the yield of *Solanum Commersonii* Violet is somewhat greater than that of "Blue Giant." But even the yield of the former was less by some two to three tons to the statute acre than that of the majority of the leading varieties of ordinary potatoes grown in the same field and with the same treatment, the yield of these in 1907 being on an average 15 tons to the statute acre. On all the plots except Nos. A and E the resulting tubers were coarse and misshapen, and only a small portion of them could be described as suitable for market purposes.

The amount of "seed" available for the other Stations was scarcely large enough to make it worth while to state the results in so much detail as the above. At Ballyhaise the plots were in the garden; the yield of "Blue Giant" was somewhat greater than that of *Solanum Commersonii* Violet, being on the average about fifteen tons per statute

acre. At Athenry and at Clonakilty the yield of the two varieties was approximately equal, being at the rate of about nine and a quarter tons per statute acre. In Galway the yield was from four and a half to six tons per statute acre.

In the bog soils of the West of Ireland (Donegal, Mayo and Kerry) the yield of both sorts was poor, averaging only from about six to eleven and a half tons per acre. *Solanum Commersonii* Violet cannot therefore be said to be of extraordinarily good cropping power, or specially suitable for boggy land.

Some of the tubers imported directly from M. Labergerie's Paris agent were not quite sound on arrival, but the blight fungus was not found amongst the fungi present. Cut slices of sound tubers were, however, proved by experiment to be capable of easy infection when artificially inoculated with blight spores. One such artificially inoculated tuber was planted along with a non-inoculated one. The inoculated tuber decayed and failed to produce a plant, whilst the non-inoculated tuber produced a normal one. There is therefore nothing inherent in the constitution or sap of this potato antagonistic to the blight fungus or tending to render it immune. At the Albert Agricultural College the plots were sprayed twice with the copper sulphate and washing soda solutions made up in accordance with the directions given in the Department's Leaflet, No. 14, and a very careful watch was kept for the appearance of the blight. Up to the beginning of August it had not made its appearance. Soon after this, however, it appeared in all the plots and was quite general in them early in September. By the first week in October the foliage in all cases was seriously blighted. This result was somewhat unexpected, but careful microscopical control left absolutely no doubt possible in the matter. Compared with other ordinary varieties cultivated in the same field neither the *Solanum Commersonii* Violet nor the "Blue Giant" exhibited any definite disease-resisting tendency.

When the crop was being lifted a small quantity of evidently diseased tubers was obtained from each plot. These were subjected to special investigations, with the result that the blight fungus (*Phytophthora infestans*) was discovered to be present in the tubers from every plot. In some cases tubers attacked by wet bacterial rot were found on lifting the crops, and during subsequent storage in boxes many more became rotten in the same manner, while others were attacked by the fungus of dry rot (*Fusarium Solani*.)

At the Agricultural Stations the observations as regards disease were not made in so detailed a manner, and the amount of disease noted both in the foliage and in the tubers was small, but the reports do not indicate any specially marked disease-resisting power.

The foliage of plants grown in bog in Mayo and Kerry was more or less blighted. From Galway the plants grown in a light loam are reported to have no disease resisting-qualities ; indeed they are said to have been the worst attacked of any seen. The blight fungus was proved by incubation and microscopical investigation to be present in the tubers of *Solanum Commersonii* Violet as well as in those of "Blue Giant" raised in Donegal, Galway, and Kerry.

There can be no doubt therefore that the claim for this potato of a power of resistance to disease approaching complete immunity is quite unfounded as far as Ireland is concerned, and, further, no difference in this respect could be discovered between this variety and the "Blue Giant."

It is instructive also to add here that the wild *Solanum Commersonii* is not immune to blight, since in one season at least it was badly attacked in M. Labergerie's own cultures.

At the Albert Agricultural College several samples of both of these varieties were tested for their cooking qualities.

Cooking Qualities. The time necessary for boiling them was longer than that required for Up-to-Date. In flavour, texture, and appearance there was nothing to distinguish these two varieties from one another ; moreover, their flavour was deficient, their texture inferior, and their appearance poor. In no case could they even be called fair for eating purposes, and all of them fell far short of average Up-to-Dates in this respect. From the other localities the reports are not much better. From Donegal, it is true, a cooked tuber grown from "seed" directly imported from M. Labergerie is reported as having a good flavour, being dry and floury, and fairly good for eating ; on the other hand, one grown from "seed" imported from M. Labergerie through his Irish agent is stated to be very soft and wet, with a very wild flavour. From Mayo they are reported as being fairly dry, but wanting in flavour. From Kerry the majority are either only fair, poor, or uneatable. From Galway they are reported as being the worst ever seen, and as tasting like boiled mangels ! From Ballyhaise they are reported as being soapy. These results speak for themselves, and need no further comment.

As regards resistance to frost, not much notice could be paid to this, as at the Albert Agricultural College the **Resistance to Frost.** foliage was very largely destroyed by blight before the frosts came on. As regards the tubers, however, many of those at and near the surface of the soil were frost bitten, and, moreover, there was considerable delay in obtaining the "seed" from France in the spring, in the first instance, owing to the prevailing frosts there.

As regards the question of the identity of *Solanum Commersonii* Violet with the "Blue Giant" careful observations have been made during the various stages of growth of the plants and of the resulting tubers. **Identity of S.C. Violet and "Blue Giant."** Slight variations and differences have, it is true, been observed, but as a result of all the observations made it cannot be said that any constant series of differences between these two plants has been established. The differences observed are not specific or even varietal, and are all more than sufficiently accounted for when considered in connection with the widely distant sources from which the original "seeds" were obtained. They arise chiefly from differences in vigour of the stocks, and are not greater than often arise in plots of any single variety the "seed" of which has been obtained from such widely scattered centres. While not prepared to state, therefore, that the two varieties are identical, we cannot show any sufficient reasons why they should be regarded as distinct.

Shortly summarised the results of the Department's experiments may thus be stated. The claims of *Solanum Commersonii* Violet as regards special cropping power, suitability to wet soils, resistance to disease and frost and excellence of flavour have not yet been established for this variety in Ireland, and it seems improbable that they will become so. Moreover, the variety, if not absolutely identical with the "Blue Giant," so far resembles the latter that the enhanced price of the "seed" of the former is not justified. Far better varieties of potato are already in cultivation in this country, and adherence to the use of the best of these rather than a departure to either of the two varieties with which this article is concerned is to be recommended.

IRISH SEED POTATOES IN ENGLAND, 1907.

Much interest has been aroused during the past two years regarding the suitability of Irish seed potatoes for planting in England. In the spring of 1906 the Department arranged with various Agricultural Colleges to conduct a series of experiments in England, Scotland, and Wales, to test the relative value of Irish seed potatoes in Great Britain as compared with English and Scotch. The results were eminently satisfactory, and a report on the trials was duly published by the Department.

The experiments were repeated in 1907 in England and Wales, where tests were made at fourteen Agricultural Colleges and on nineteen private farms. The trials were made in the following counties:—*England*—Bedford, Buckinghamshire, Berkshire, Cambridgeshire, Cheshire, Derbyshire, Hertfordshire, Kent, Lancashire, Lincolnshire, Northumberland, Shropshire, Staffordshire, Sussex, Yorkshire. *Wales*—Anglesea, Cardigan, Carnarvon, Glamorgan.

In 1906 the Department purchased the Irish seed direct from growers and the experimenters were asked to procure English and Scottish seed through the ordinary trade channels. In 1907 the Department asked Messrs. Sutton and Sons, Reading, to purchase for them the necessary quantities of Irish, Scottish, and English seed through the ordinary sources of supply, and to distribute the seed to the experimenters.

The only stipulation made was that the seed in every case should have been grown for at least the two previous years on the same farm. This condition was complied with, and in the case of the Irish seed it may be mentioned that the British Queen seed had been grown on the same farm for three years, and the Up-to-Date seed for about ten years. The Department did not know from whom the seed had been purchased until after it had been distributed.

By the adoption of this method it was hoped to secure seed that would represent fairly the general supply from each of the three countries.

The respective supplies of seed were obtained from the following districts:—

	British Queens.	Up-to-Dates.
Irish,	Belfast,	Londonderry,
Scottish,	Dumfries,	Dumfries,
English,	Peterboro',	Peterboro',

The average results of the trials are shown in Tables I and II, while detailed results from each centre are given in Tables III and IV.

IRISH SEED COMPARED WITH SCOTTISH SEED.

TABLE I.

SHOWING the total average yield per statute acre from IRISH and SCOTTISH Seed Potatoes grown at a number of centres in England and Wales in 1907.

—	BRITISH QUEEN.						UP-TO-DATE.						—
	Average Total Yield.						Average Total Yield.						
	IRISH.			SCOTTISH.			IRISH.			SCOTTISH.			
ENGLAND, ...	T.	C.	Q.	T.	C.	Q.	T.	C.	Q.	T.	C.	Q.	32 centres.
	9	10	1	9	5	0	11	0	1	11	5	3	
WALES, ...	8	12	1	8	17	2	11	4	2	9	19	3	5 centres.

NOTE.—For details see Table III.

The average results show that with the variety British Queen, planted in England, Irish seed has given a slightly higher yield than Scottish seed; in the Welsh tests, however, the Scottish seed shows a slight advantage. With the variety Up-to-Date the reverse is the case, the Scottish seed giving slightly higher yields in England, whereas the Irish seed has produced heavier crops in Wales. With the exception of the comparison of Irish and Scottish Up-to-Date seed grown in Wales it may be observed that in no case does the average yield from the two lots of seed vary more than five cwts. per acre. This confirms the opinion held by the Department and many other growers to the effect that Irish seed, if not superior, is at least equal to Scottish seed for planting in England and Wales.

IRISH SEED COMPARED WITH ENGLISH SEED.

TABLE II.

SHOWING the total average yield per statute acre from IRISH and ENGLISH Seed Potatoes grown at a number of centres in England and Wales in 1907.

—	BRITISH QUEEN.						UP-TO-DATE.						—
	Average Total Yield.						Average Total Yield.						
	IRISH.			ENGLISH.			IRISH.			ENGLISH.			
ENGLAND, ...	T.	C.	Q.	T.	C.	Q.	T.	C.	Q.	T.	C.	Q.	32 centres.
	9	10	1	8	8	1	11	0	1	6	8	1	
WALES, ...	8	12	1	7	16	2	11	4	2	6	13	3	5 centres.

NOTE.—For details see Table IV.

The results given in this Table entirely confirm those obtained in 1906, and it is clearly evident that Irish seed will produce much heavier crops in England than English seed, even when the latter is changed from one district to another, as was necessarily the case in these experiments.

General Observations.

The results on the whole must be regarded as satisfactory both to farmers in England and in Ireland. The English farmer finds it necessary to obtain a change of seed potatoes at least every second or third year, and these experiments, along with numerous other trials, have proved that he can now look to Ireland as well as to Scotland for seed well suited to his purpose. The Irish farmer has now an opportunity of re-establishing a business which at one time was extensive and profitable.

It is, however, desirable to enumerate briefly the points to which Irish farmers must pay particular attention before they can hope to establish on its former scale the trade in seed potatoes with England.

1. *Varieties* :—Irish farmers must be prepared to supply those varieties that are in demand in England. They cannot hope to export for seed such kinds as Champion or Beauty of Bute. These are round potatoes with deep eyes, and are not popular in England, where potatoes are peeled before being cooked. English growers, as a rule, prefer kidney-shaped potatoes with shallow eyes. For maincrop purposes, varieties of the Up-to-Date type—such as Factor, Duchess of Cornwall, Scottish Triumph, and Dalmeny Beauty—are largely grown, but other kinds—such as Evergood, Northern Star, and Langworthy—are in demand in some districts. As mid-season kinds, British Queen and Royal Kidney are popular; and as first earlies, Ninetyfold, Epicure, May Queen, Duke of York, and Sir John Llewellyn may be mentioned.

2. *Pure Seed*.—The necessity for supplying pure seed only cannot be too strongly emphasised. A few consignments of impure seed will do great harm to the industry. It is imperative that all those engaged in the business should realise the importance of this fact. It is not sufficient to buy the original seed from a guaranteed pure stock, but the greatest care should be exercised to keep the stock pure. The growers own seed should be sprouted in boxes (see the Department's leaflet No. 58), and carefully examined before planting. In this way it will be possible to detect "rogues," that is, tubers of another variety;

the colour of the sprout is an excellent guide. During the period the crop is growing, any plants exhibiting different characteristics should at once be dug and the tubers removed, the colour of the blossom is a common means of distinguishing "rogues." Other distinctions are a difference in the time of ripening, difference in foliage, and difference in the shape or colour of the tubers.

3. *Selection and Grading*.—Seed should be carefully selected and properly graded; all damaged, mis-shapen, and particularly all diseased tubers should be removed. The size of the seed is also an important matter. In Ireland seed potatoes generally consist of the crop as lifted with only the small tubers removed. In England, however, potatoes are generally required of "seed size," that is, tubers that will pass through a $1\frac{3}{4}$ or 2-inch but not through a $1\frac{1}{4}$ -inch riddle. Such tubers are approximately of the size of hen eggs.

4. *Immature Seed*:—It is now recognised that seed from crops lifted before they are fully mature will produce more vigorous plants, and, consequently, heavier yields than seed from crops which have been allowed to become fully ripe. In Ireland this applies more particularly, perhaps, to early varieties, but it is a point worthy of notice by growers of seed potatoes.

5. *General*:—Other points requiring attention are that seed should not be despatched in frosty weather, and that consignments should be despatched by the cheapest route. In this connection the seller should facilitate the purchaser by making preliminary inquiries from the transit companies, and he may find that special through rates will be arranged when it can be shown that such rates would encourage an industry, and, at the same time, increase the traffic of the companies interested. There is now a considerable demand from England for Irish seed potatoes, and growers in this country who have reliable stocks for sale may find it advantageous to insert advertisements in the leading agricultural journals.

To sum up, the essentially important points are:—

- (a.) The cultivation of varieties that are popular in England.
- (b.) The necessity for supplying such seed only as is pure and true to name.
- (c.) The careful selection of the tubers before despatch.
- (d.) Early lifting of the crop.
- (e.) An endeavour to meet requirements in general, and to supply what the purchaser is prepared to pay for, even though it necessitates a departure from the regular practice adopted at home.

TABLE III.

SHOWING the total yield per statute acre at each centre from IRISH and SCOTTISH Seed. A summary of these results is given in Table I.

CENTRE.	British Queen. Total Yield.		Up-to-date. Total Yield.	
	Irish.	Scottish.	Irish.	Scottish.
ENGLAND.				
	T. C. Q.	T. C. Q.	T. C. Q.	T. C. Q.
Agricultural Institute, Ridgmont, Beds.,	8 5 0	7 12 3	9 15 2	12 14 2
*University Farm, Impington, Cambridge,	11 6 3	11 16 1	13 14 1	14 2 0
Agricultural College, Holmes Chapel, Cheshire,	10 10 3	11 6 0	11 13 3	12 19 0
Manor Farm, Garforth, Leeds, ..	11 2 3	9 15 2	13 10 1	13 11 0
*Midland Agricultural College, Kingston, Derby.	9 17 3	7 8 0	14 5 1	9 17 0
Cockle Park, Northumberland, ..	4 15 1	6 1 1	10 1 2	10 15 2
University College Farm, Reading, ..	9 3 2	10 10 0	12 0 1	11 14 2
Harper-Adams Agricultural College, Newport	11 10 3	12 2 0	13 12 1	14 7 2
*County Education Offices, Stafford, ..	11 2 2	8 12 2	12 19 0	13 17 0
Agricultural College, Uckfield, Sussex, ..	4 14 0	4 14 2	5 15 1	5 13 3
County Council Farm, Hutton, near Preston,	6 7 0	7 14 3	8 13 3	9 19 0
South Eastern Agricultural College, Wye, Kent.	..	..	12 2 2	12 7 1
A. Gray, Old Rowney, Shefford, Beds., ..	11 15 1	11 12 2	12 12 3	11 16 0
R. M. Murdock, Langley, Slough, Bucks.,	12 11 3	11 16 1	11 6 3	12 4 2
W. H. Carter, Moss Hall, Carrington, Cheshire.	9 5 3	8 10 3	9 9 3	8 19 3
W. J. Dutton, Brindley Lea Hall, Nantwich,	11 5 3	11 7 0	9 11 2	11 10 0
G. W. Gerrard, Weaverham Wood, North- wich.	11 6 1	11 2 3	12 3 1	12 18 0
J. R. Newton, The Bent, Warburton, Cheshire.	11 13 2	11 16 0	11 13 0	13 10 0
N. Thompsonstone, Northwood, Chelford, Cheshire.	7 11 0	9 9 1	10 18 2	11 6 2
J. L. Marr, Malton, Meldreth, Herts, ..	8 2 2	4 17 2	7 15 0	9 2 2
J. Blundell, Ream Hills, Kirkham, Lancs.,	17 14 0	15 10 3	14 13 2	16 13 2
D. H. Clarke, Fairfield, Poulton-le-Fylde,	8 8 3	8 16 1	9 14 2	8 3 2
J. Crook, Poplar Grove, Kirkham, ..	7 15 0	8 0 0	10 0 2	11 0 1
P. Park, Altadore, Preston, ..	6 8 0	5 9 3	11 14 3	5 15 2
R. Sumner, Melling, Liverpool, ..	9 19 3	10 8 1	10 12 2	10 9 0
F. Martin, Hubbert's Bridge, Boston, ..	7 4 1	7 2 2	5 12 0	5 16 1
T. Almack, Barlow Hall, Selby, ..	8 13 3	8 14 1	9 14 1	10 7 3
H. Smith, Thorpe Hall, Howden, Yorks, ..	8 6 0	7 12 2	12 16 0	14 13 0
AVERAGE FOR ENGLAND, ..	9 10 1	9 5 0	11 0 1	11 5 3
WALES.				
University College Farm, Aberystwyth, ..	6 7 1	4 7 1	7 7 0	7 10 0
University College Farm, Bangor, ..	14 4 1	13 11 0	18 14 2	18 12 2
J. Coulthard, Beaumaris, ..	5 8 0	4 8 1	4 10 1	4 17 1
E. W. Parry, Lledwigan, Llangeftni, Anglesea,	6 3 1	11 0 2	15 0 1	10 8 3
A. Robinson, Ewenny Priory, Bridgend, Glam.	10 18 2	11 1 0	10 11 1	8 11 0
AVERAGE FOR WALES, ..	8 12 1	8 17 2	11 4 2	9 19 3

* At these centres the figures given represent the average yield of two or more tests. 5

TABLE IV.

SHOWING the total yield per statute acre at each centre from IRISH and ENGLISH Seed. A summary of these results is given in Table II.

CENTRE.	British Queen. Total Yield.		Up-to-date. Total Yield.	
	Irish.	English.	Irish.	English.
ENGLAND.				
	T. C. Q.	T. C. Q.	T. C. Q.	T. C. Q.
Agricultural Institute, Ridgmont, Beds. . .	8 5 0	7 15 2	9 15 2	5 16 2
*University Farm, Impington, Cambridge.	11 6 3	10 9 0	13 14 1	8 3 1
Agricultural College, Holmes Chapel, Cheshire.	10 10 3	12 3 2	11 13 3	6 17 0
Manor Farm, Garforth, Leeds. . .	11 2 3	9 12 3	13 10 1	7 1 2
*Midland Agricultural College, Kingston, Derby.	9 17 3	4 5 1	14 5 1	6 4 0
Cockle Park, Northumberland. . .	4 15 1	4 14 0	10 1 2	5 18 3
University College Farm, Reading. . .	9 3 2	8 7 3	12 0 1	5 17 1
Harper-Adams Agricultural College, Newport	11 10 3	10 4 1	13 12 1	8 5 0
*County Education Offices, Stafford. . .	11 2 2	7 15 2	12 19 0	5 8 3
Agricultural College, Uckfield, Sussex. . .	4 14 0	4 10 1	5 15 1	2 8 3
County Council Farm, Hutton, near Preston.	6 7 0	6 16 0	8 13 3	4 2 0
South Eastern Agricultural College, Wye, Kent.	—	—	12 2 2	9 16 3
A. Gray, Old Rowney, Shefford, Beds. . .	11 15 1	10 4 3	12 12 3	4 18 3
R. M. Murdock, Langley, Slough, Bucks. . .	12 11 3	11 9 3	11 6 3	7 1 3
W. H. Carter, Moss Hall, Carrington, Cheshire.	9 5 3	7 5 3	9 9 3	6 10 2
W. J. Dutton, Brindley Lea Hall, Nantwich.	11 5 3	10 14 3	9 11 2	4 17 3
G. W. Gerrard, Weaverham Wood, Northwich.	11 6 1	9 8 2	12 3 1	6 11 2
J. R. Newton, The Bent, Warburton, Cheshire.	11 13 2	10 7 1	11 13 0	8 4 0
N. Thompson, Northwood, Chelford. . .	7 11 0	8 11 0	10 18 2	5 17 3
J. L. Marr, Malton, Meldreth, Herts. . .	8 2 2	4 5 0	7 15 0	3 18 3
J. Blundell, Ream Hills, Kirkham, Lanes. . .	17 14 0	14 12 3	14 13 2	13 7 0
D. H. Clarke, Fairfield, Poulton-le-Fylde.	8 8 3	8 18 3	9 14 2	4 17 1
J. Crook, Poplar Grove, Kirkham. . .	7 15 0	7 10 0	10 0 2	6 0 1
P. Park, Altadore, Preston. . .	6 8 0	5 17 1	11 14 3	6 11 2
R. Sumner, Melling, Liverpool. . .	9 19 3	7 10 1	10 12 2	6 10 1
F. Martin, Hubbert's Bridge, Boston. . .	7 4 1	7 2 2	5 12 0	2 13 2
T. Almack, Barlow Hall, Selby. . .	8 13 3	8 15 3	9 14 1	8 13 1
H. Smith, Thorpe Hall, Howden, Yorks. . .	8 6 0	7 15 3	12 16 0	6 19 3
AVERAGE FOR ENGLAND, . . .	9 10 1	8 8 1	11 0 1	6 8 1
WALES.				
University College Farm, Aberystwyth. . .	6 7 1	5 9 2	7 7 0	7 10 1
University College Farm, Bangor. . .	14 4 1	11 16 3	18 14 2	10 16 3
*J. Coulthard, Beaumaris. . .	5 8 0	4 3 3	4 10 1	2 0 0
E. W. Perry, Liedwigan, Llangetni, Anglesea.	6 3 1	6 13 1	15 0 1	7 7 0
A. Robinson, Ewenny Priory, Bridgend, Glam.	10 18 2	10 19 1	10 11 1	5 6 1
AVERAGE FOR WALES, . . .	8 12 1	7 16 2	11 4 2	6 13 3

* At these centres the figures given represent the average yield of two or more tests.

TECHNICAL INSTRUCTION IN IRELAND.

[*.* *The following is the fourth of a short series of articles to appear in succeeding issues of the Journal on some recently established Technical Schools in Ireland. These descriptive articles relate to centres differing widely in population and needs, and it is believed that they will be of interest and value in view of future developments in towns in which permanent buildings have not yet been provided. The first article dealt with the Belfast Technical Institute; the second with the Technical School, Ballymoney; and the third with the Central Technical Institute, Waterford.* Those buildings were new. It is now proposed to publish several articles, of which this is the first, dealing with buildings already erected but adapted to meet the needs of a Technical School.*]

TECHNICAL INSTRUCTION IN BALLYMENA.

By P. F. GILLIES, B.Sc.,

Principal, Municipal Technical School, Ballymena.

PART I.—INTRODUCTORY.

When it was suggested that the Technical Instruction Act should be adopted in Ballymena, there was considerable hesitation before embarking on the novel policy of levying a penny rate for technical education. The advantages to be gained by such a proceeding were not immediately evident, and it was only after a deputation from the Urban Council had visited various centres in Scotland, and had been impressed by the nature and magnitude of the work going on there, that it was realised that possibly there might be something in technical instruction.

PART II.—INITIAL PROCEDURE UNDER THE ACT OF 1899.

The Technical Instruction Act was adopted in October, 1900, Ballymena being one of the first towns in Ireland

First Steps. to take this step, and, after various initial difficulties, a Principal was appointed about a year later. Immediately afterwards a house of ten rooms was rented for temporary accommodation at £45 a year; three of the rooms were of

* See issue of Department's *Journal* for April, 1907, Vol. VII., No. 3, p. 457; for July, 1907, Vol. VII., No. 4, p. 652; and for October, 1907, Vol. VIII., No. 1, p. 11.

MUNICIPAL TECHNICAL SCHOOL, BALLYMENA.

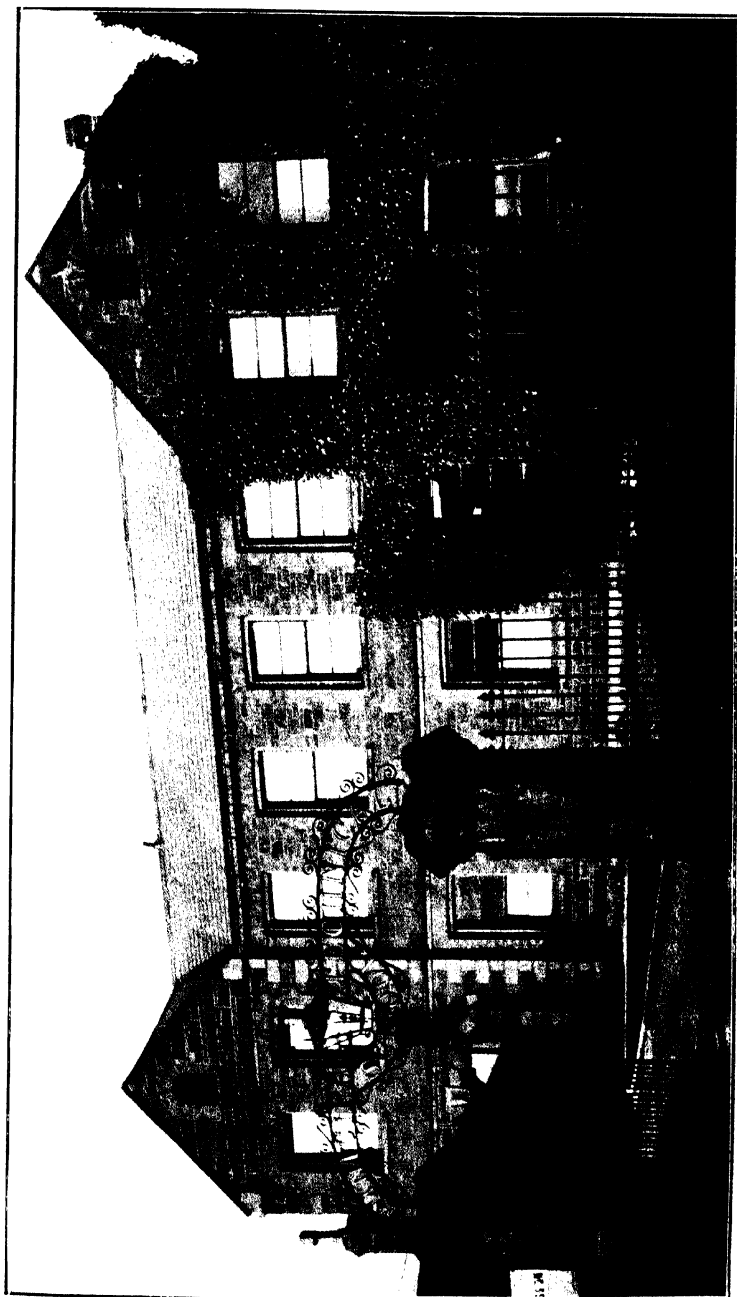


Fig. 1.—Front Elevation of the Building.

fair size for a dwelling-house, but the ceilings were in general low, and some of the classes had to be conducted simultaneously in two or three adjacent rooms, while occasionally over 50 students were crowded in one room, of dimensions 20 feet by 16 feet, and of height $10\frac{1}{2}$ feet, in which also a gas-cooker was being used.

A scheme had already been sent down by the Department, and a Technical Instruction Committee appointed, consisting of nine members, five of whom were Urban Councillors and four added members.

The work of providing furniture and equipment was hurried on, and the school was opened on November 18th, 1901.

During the first week the entries were few, but thereafter a rush ensued, and the number of individuals enrolled in the first session reached the abnormal total of 547, who made 850 class entries. A considerable number of these were attracted merely by the novelty of the scheme, and were not prepared for genuine work. However, there was a sufficient number of earnest students to justify the Technical Instruction Committee taking steps towards obtaining premises better adapted for a school.

In the spring of 1902 there came into the market a building which had been erected at a cost of £3,800, and had **Purchase of Premises.** for a few years been used as a hosiery and handkerchief factory. It was at once realised by those interested in the promotion of technical education that this building, situated within 200 yards of the Town Hall, and therefore in a central position, might well be adopted to serve for school purposes. The Technical Instruction Committee having carefully considered the available sites within the town, and the cost of erecting a school, unanimously arrived at the conclusion that it would be well to aim at the purchase of the building referred to. Accordingly, representation was made to the Urban Council with a view to the purchase by them of the building as town property, and the Council were not slow to acknowledge the wisdom of the proposal, those who were not sanguine as to the ultimate success of technical education being reconciled by the consideration that, if the scheme should come to nothing, the building might return to its original purpose. A deputation of the Urban Council then waited on the owner of the premises, who kindly offered the building for the sum of £1,500, on condition that it was used for town purposes, the purchase price to include a 5 h.p. Crossley gas engine, various tables, and some office furniture, and, after negotiations, the landlord of the estate granted

a lease of the site for 999 years, at a rent of one shilling per annum. A loan of £1,500 was next arranged with the Board of Works, on the security of the penny rate, the repayment to extend over thirty years.

PART III.—DESCRIPTION OF THE SCHOOL.

The Committee thus came into possession of a substantial stone building, but fitted with remnants of shafting,

Early Difficulties. oil-stained floors, iron-barred windows, and rows of gas fittings arranged for the convenience of machines, and unfortunately adequate funds were not available for alteration and equipment. The Department had already contributed £500 towards the equipment and initial expenses of the school, but £100 of this money had been handed over by the Committee to the Governors of the Ballymena Academy for the excellent purpose of fitting up a Science Laboratory, and of the remainder a considerable part had been spent in connection with the temporary premises. Money had to be found somewhere, and the only way was to open a local fund, as urged by the officers of the Department, who most willingly assisted the promotion of the scheme in every respect. A circular letter was thereupon sent out, followed by personal calls on the part of a few members of the Committee, who succeeded in raising the sum of £330—£80 above what was originally aimed at. A deputation of the Committee was then courteously received by the Department, who, appreciating the local effort which had been made, generously contributed £350 towards the Equipment Fund.

At the outset the guiding principle was laid down that structural alterations should be on as limited a scale as possible, that old fittings should be used as far as convenient, and that more money should be spent on equipment than on bricks and mortar. The aim was to obtain a useful rather than a showy school. Stud walls were erected where necessary in order to divide the building into rooms of suitable size. With two exceptions the rooms enter independently from the entrance hall; the Art Room is entered through the Mechanical Drawing Room, and this causes no great inconvenience, as at least two rooms are required for the Art Class, while the Domestic Science Room may be entered by a side door. The front entrance was treated so as to remove as far as possible the factory appearance of the building. The large gateway, within which the loading and unloading went on, was fitted

MUNICIPAL TECHNICAL SCHOOL, BALLYMENA

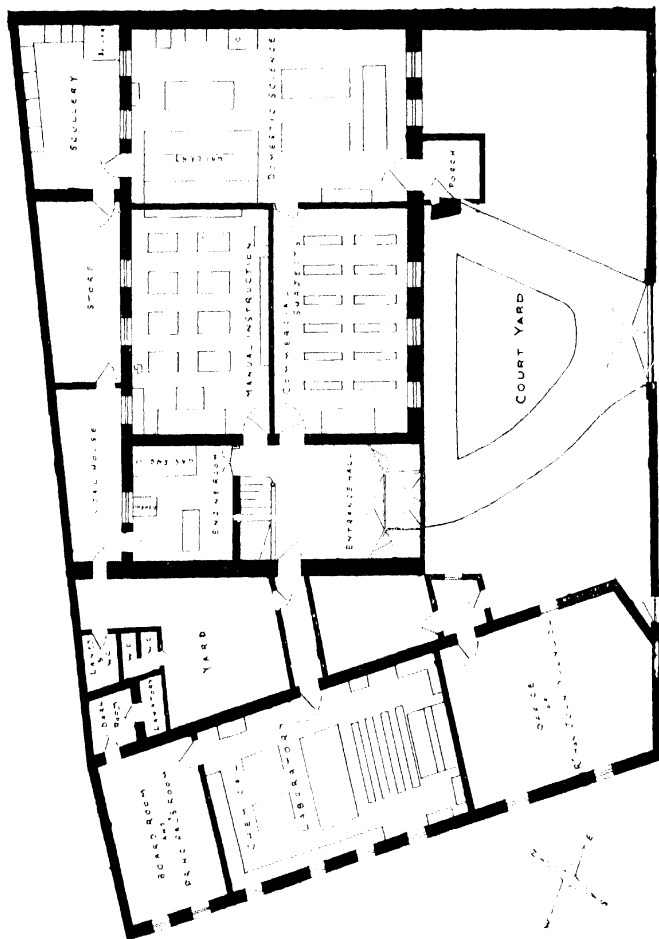


Fig. 2.— Ground Plan.

MUNICIPAL TECHNICAL SCHOOL, BALLYMENNA

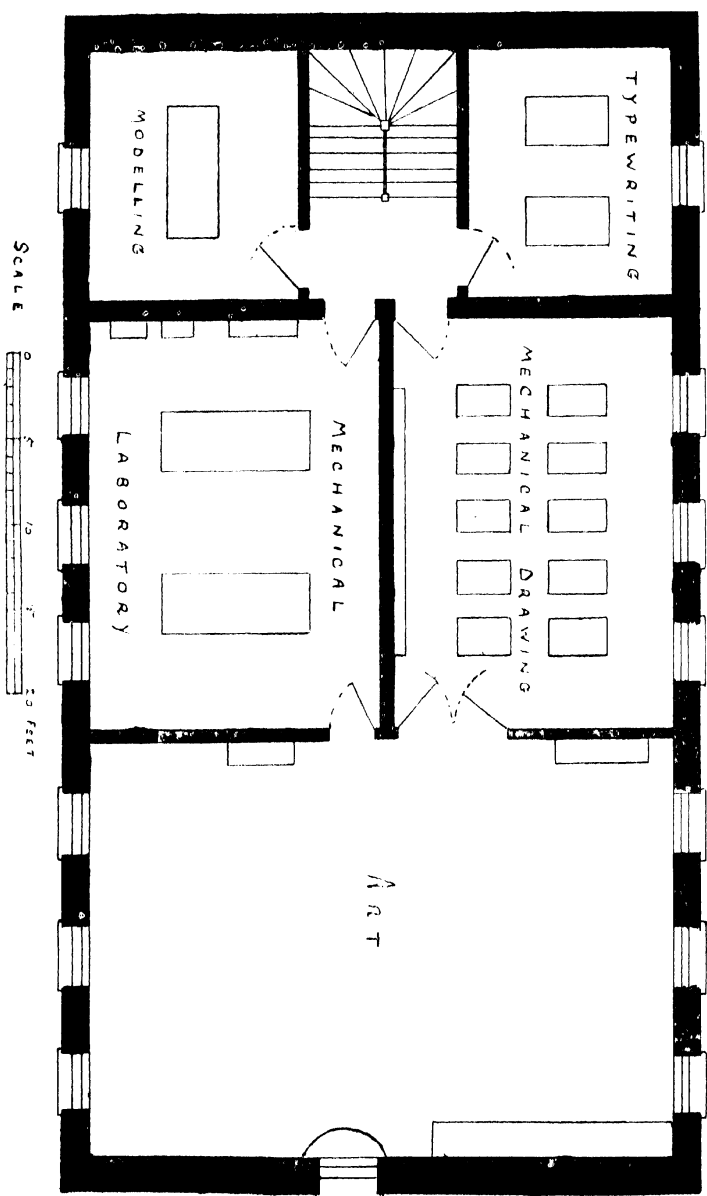


Fig 3.—First Floor Plan.

with a glazed vestibule and with swing doors, a small cloak-room was provided on either side of the entrance, while the floor was laid with square tiles, and the walls sheeted with pitch pine. The school is heated by means of high-pressure hot-water pipes.

Areas of Floors and of Lecture Rooms. The following tables show the number and size of the rooms in use.

GROUND FLOOR.

	Length.	Width.	Floor Area.
Entrance Hall,	16 ft.	15 ft.	240 sq. ft.
Engine Room,	15 ..	15 ..	225 ..
Wood Workshop,	27 ..	20 ..	540 ..
Commercial Room,	27 ..	20 ..	540 ..
Domestic Science Room,	40 ..	21 ..	840 ..
(with Scullery)	20 ..	14 ..	280 ..
Science Laboratory,	40 ..	20 ..	800 ..
Principal's Room,	20 ..	14 ..	280 ..
Dark Room,	12 ..	5 ..	60 ..

FIRST FLOOR.

	Length.	Width.	Floor Area.
Art Room,	40 ft.	24 ft.	960 sq. ft.
Mechanical Laboratory,	24 ..	20 ..	480 ..
Machine Drawing Room,	24 ..	20 ..	480 ..
Typewriting Room,	15 ..	14 ..	210 ..
Modelling Room,	15 ..	15 ..	225 ..

Total Floor Area, 6,160 sq. ft.

In each case the height of the ceiling is about 13 feet 6 inches. A few notes on some of the rooms may prove of interest.

The exigencies of space demanded that one room should be used both for demonstrations and for practical work in **Science Laboratory.** science. For this purpose the old office was selected—a room of good size, in a part of the building consisting of one storey, and having the Principal's office and a dark room adjoining. It was evident that to equip this room satisfactorily as a Chemical and Physical Laboratory with modern furniture would mean a diminished expenditure on subjects of more immediate practical interest. Some old office counters with mahogany tops were

therefore requisitioned, and with the aid of a carpenter were arranged along two walls and in the centre of the floor for chemical purposes, while ordinary tables are in use for Physical benches. At one end of the room is a demonstration bench 9 feet long, with a teak top, fitted with gas and water. A fume closet and distillation bench are fixed along the wall. In front of the demonstration table are arranged desks having accommodation for 20 students, and it is possible to accommodate 20 students for work either in Chemistry or Physics. Three cupboards, with glass fronts, for the storage of apparatus and shelves for chemicals, complete the equipment of this room. The illustrations show the room as used for a Practical Electricity class and for a demonstration in Chemistry.

Originally this room was very poorly furnished, with long, inconvenient carpenter's benches, with tool racks above.

Woodwork Room. Recently the Committee, finding that some money was available from their funds, set aside £60 for its equipment, the old benches being "scrapped." A screw-cutting lathe of use for wood or iron turning had previously been provided at a cost of £20, and some excellent models of floors, roofs, &c., costing about £20, were of course retained. The room now contains eight benches, each fitted for two students with Parkinson's vices, acme stops, and cupboards containing a set of tools. A wall case contains the additional tools required. A recess at one end of the room was converted into a cupboard by the use of sliding doors taken from another part of the building. The room is brightened by means of diagrams of trees and of building constructional details, and is provided with a large blackboard.

This room adjoins the Woodwork Room, and contains a 5 h.p. gas engine, which was purchased along with the building also a small compound-wound 4-pole dynamo (110 volts, 10 amperes), which is used for experimental purposes.

Engine Room.

Domestic Science has always been a prominent feature of the school work, and a large room has been set aside for the purpose. The floor area was sufficient to permit the erection of a gallery, which enables the students to follow the demonstrations satisfactorily. The working tables are somewhat large in size (9 ft. 6 in. long by 3 ft. 6 in. wide), but they have the advantage of being very substantial and firm, and when the room has to be

MUNICIPAL TECHNICAL SCHOOL. BALLYMENA.

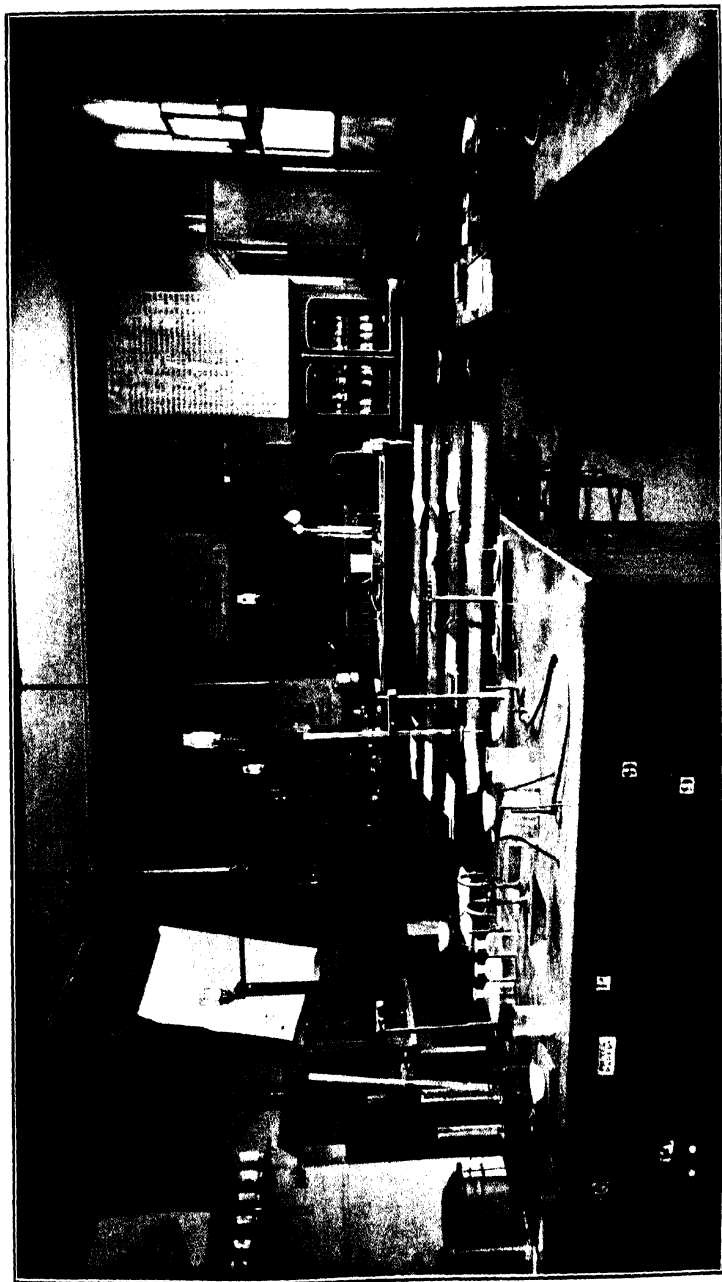


Fig. 4.—Science Laboratory—South End.

MUNICIPAL TECHNICAL SCHOOL, BALLYMENA.



Fig. 5. — Science Laboratory — North End

used for Tailors' Cutting or for Boot and Shoe Manufacture they provide the necessary large surface for marking the cloth or skin. Smaller tables would prove more suitable for Domestic Science work ; those now in use were formerly used for laundry purposes, and were received gratis by the Committee ; it is proposed to replace them next year by new ones. The gable of the school happens to be a party wall ; it was consequently inconvenient to instal a cooking range of a recognised household character, and so the Committee have provided one of movable type, fitted with boiler and oven, which has proved very satisfactory ; this is supplemented by a gas cooker hired from the Urban Council. The smoothing-irons are heated by a gas laundry stove. The walls are decorated with models, illustrations of manufactures, diagrams and pictures, all relating to the subjects taught in the room. Indeed, throughout the school it is sought to have the walls covered with diagrams, &c., and the students manifest considerable interest in them. Opening off the Domestic Science Room is a scullery, containing eight fixed wooden tubs, each fitted with hot and cold water. The equipment of this department includes a Singer's sewing-machine, mangle, and wringing-machine on stand.

For this department there is set aside a room occupying half of the upper floor, and a smaller room is used

Art Room. exclusively for clay modelling. When the school was established the Committee took over an Art Class which had been in existence for five or six years, and purchased its equipment, to which was added a large and varied assortment of casts and models. The furniture of the room is exceedingly simple, consisting for the most part of chairs. It is found that chairs costing locally one shilling each serve as well for drawing desks as more costly easels, and on the occasions when the Art Room is used for public lectures these are naturally useful. The furniture otherwise consists of stands for casts, blackboards, easels for still life painting, and cupboards for the storage of materials. What has been saved in furniture has been well spent in models, casts, and examples for drawing, with which the school is adequately equipped.

This room is fitted with tables and seats for twenty students.
Mechanical Drawing Room. There is arranged on the shelves a good selection of accurate models for Machine Construction and Drawing.

For a considerable time the need has been felt of a laboratory suitable for work among engineering and building trades students : from time to time pieces of apparatus have been purchased, including a crane, flywheel, screw jack, differential pulley blocks, model of steam engine, and wall crab, while various simple contrivances used in the absence of more refined apparatus have produced wonderfully accurate results. At the present time about £60, available from the increased grant to be received from the Department this year, is being expended in the purchase of additional equipment.

The Commercial Room does not demand any special remark. Benches are provided for forty students, and there is a set of maps of value in commercial studies.

While the teaching work in Typewriting goes on in the Commercial Room, a small room is set aside for the students to practise in the course of each week at stated times. Four typewriting machines of popular type are in use.

PART IV.—SCHEME OF INSTRUCTION.

It has ever been the aim of the Committee to adapt the work of the school to the needs of the industries of the district. It would be hard to say whether Ballymena should be classed as a commercial or as an industrial town : it forms the centre of a large district, for which it serves as the market town, while its industries are varied and important, including the staple industries of flax-spinning and linen-weaving, engineering, and pork-curing. The population at last Census was 10,886, and during the past few years the area covered by the town has considerably increased. The school is to be regarded as a technical, but not a Trade or Trade Preparatory school ; there is no teaching of trade processes except in so far as such is necessary in the demonstration of principles. Courses of study have been drawn up in order that students may be encouraged to co-ordinate their studies, and, in general, students are willing to attend a set of allied classes. In the early stages of the work, the staff found great difficulty in carrying on some branches by reason of the lack of preparedness on the part of students : nowadays a better type of student applies for admission, and those who are not otherwise qualified for the ordinary technical classes are urged to spend a year in the preparatory course, where, by the teaching of English

MUNICIPAL TECHNICAL SCHOOL, BALLYMENA.

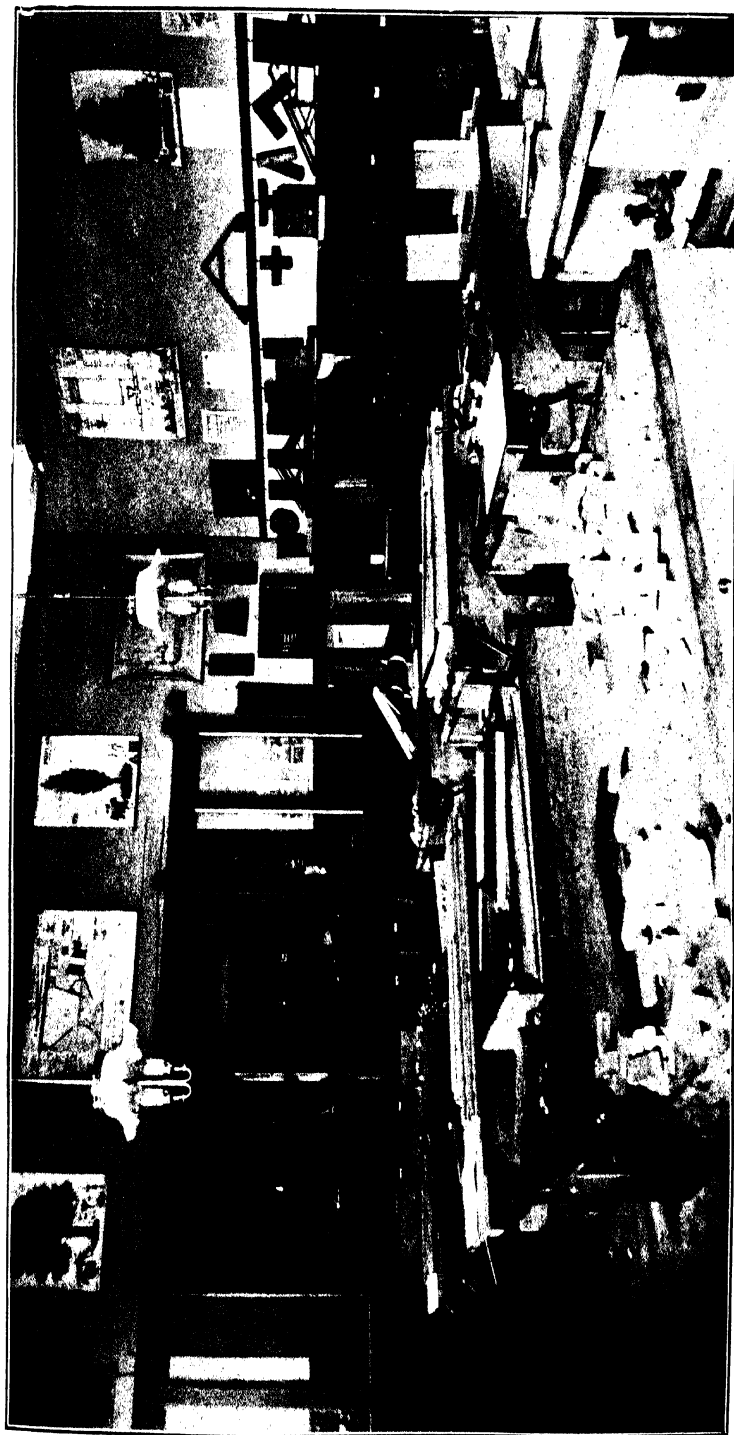


Fig. 6.—Manual Instruction Room.

MUNICIPAL TECHNICAL SCHOOL, BALLYMENA.



Fig. 7.—Domestic Science Room.

Composition, Mathematics, Drawing and Science, it is sought to lay down a suitable foundation for subsequent specialised studies. Omitting the first year, when there was an abnormal enrolment of ill-prepared students, attracted by the novelty of the scheme

Number and Character of the Students. and the idea that they were to obtain an education at little cost to themselves, the number of individuals on the roll has been fairly uniform from year to year, as seen by the following figures :—

Year.	1901-02.	1902-03.	1903-04.	1904-05.	1905-06.	1906-07.
Number of Males enrolled, ...	244	201	202	189	250	212
Number of Females enrolled, ...	303	217	240	251	238	238
Total number of individuals.	547	418	442	440	488	450

During the present session the total number of students promises to be somewhat greater than during the previous one. There are in Ballymena, as in most other schools, many, especially on the female side, who do not make satisfactory students. Leaving these out of consideration there is a large number of students of the right kind, some of whom have been attending for over six years. The following figures taken from last year's report indicate this fact :—

OCCUPATIONS OF STUDENTS.

—	Males.	Females.
Farmers,	10	—
Building Trades,	13	—
Engineers, Workers in Metal, Draughtsmen,	38	—
Printing Trades,	3	—
Textile Industries,	9	21
Painters,	1	—
Chemists and Druggists,	3	—
Salesmen, Saleswomen, and Shopkeepers,	39	14
Clerks in Commercial Offices,	7	16
Law Clerks,	18	—
Domestic Servants,	—	19
Dressmakers and Milliners,	—	16
Teachers,	34	19
Occupations not included in above classes,	18	12
Boys and girls just left school,	2	20
Boys and girls still in attendance at school,	16	35
No occupations stated,	1	66
Total,	212	238

Of course the individuals enrolled do not all become genuine students. The fees are low, and some who, prompted by the example of friends, join the school, find that success requires earnest and often self-denying labour, and they soon weary. On the other hand, many, coaxed at first to join, and induced to attend, ultimately become diligent students. It is customary to appeal to those absent without reason, by means of post-cards, circulars, or personal visits, and it has been found that one important factor in the success of a school in a town like Ballymena is that every teacher should take an interest in the welfare of his students.

The number of National Teachers in attendance seems unduly large, but the explanation is simple. Ballymena being the centre of a well populated district, the teachers have been willing to attend the Technical School in order to obtain the training necessary for the thorough discharge of their duties, and the Technical Instruction Committee has encouraged their attendance in the confident belief that national benefit will ultimately be gained from the improved primary education of the boys and girls who are year by year coming into the town from the adjoining country districts. The training of teachers in Drawing dates from 1895, and since 1901 there has annually been conducted a large and enthusiastic class in Elementary Science for National Teachers.

PART V.—ORGANISATION AND STAFF.

The only whole-time officer on the staff is the Principal, who is not only responsible for the organisation of the school, but takes a large share in the teaching duties especially in the Science and Technical Classes, his work being so arranged that he may obtain as far as possible a knowledge of all the members of the school. For over four years Ballymena has successfully co-operated with Larne in the employment of a highly qualified instructress of Domestic Science, and for a second session is co-operating with Coleraine and Ballymoney in respect of Building Trades subjects. Previously occasional teachers were employed in the latter department with mediocre results, and the combination of two or more towns in employing whole-time officers is bound to prove successful elsewhere also. Eleven teachers are engaged to teach special subjects. The number of teachers employed for part of their time is probably greater than in most towns of similar size, but various reasons have combined to make this system effective:—all these teachers, with one exception,

MUNICIPAL TECHNICAL SCHOOL, BALLYMENA.

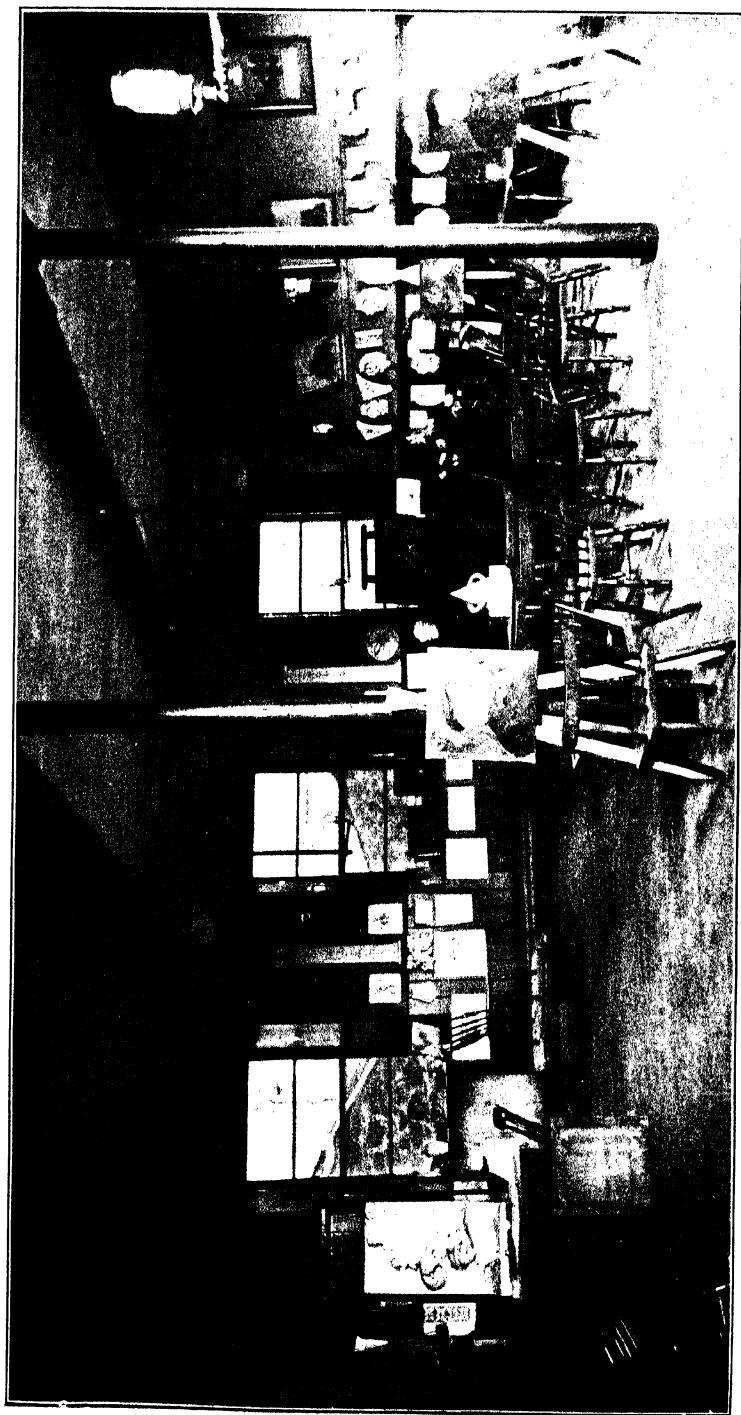


Fig. 8.—Art Room.

MUNICIPAL TECHNICAL SCHOOL, BALLYMENA.



Fig. 9 — Mechanical Drawing Room.

Specialised Courses

	Number of Individual Students.	Hours of Attendance.
SCIENCE AND TECHNICAL CLASSES.		
Practical Mathematics,	15	657
Practical Geometry,	16	226
Experimental Mechanics,	10	303
Mechanical Engineering,	3	52
Chemistry,	14	668
Machine Construction and Drawing,	18	678
Building Construction and Drawing,	7	185
Manual Instruction in Wood,	14	564
Electric Lighting,	14	509
Boot and Shoe Manufacture,	7	296
Tailors' Cutting,	10	392
Elementary Experimental Science,	18	817
Science for National Teachers,	24	1,703
Total,	—	7,650
COMMERCIAL CLASSES.		
Bookkeeping,	63	1,744
Shorthand,	73	1,918
Typewriting,	21	324
Commercial Arithmetic,	48	724
Total,	—	4,710
ART CLASSES.		
Freehand, Model and Blackboard Drawing, Light and Shade, and Clay Modelling,	55	2,592
Geometrical Drawing,	53	1,738
Art Woodwork,	16	442
Total,	—	4,772
WOMEN'S WORK.		
Cookery,	45	1,583
Dressmaking,	30	712
Laundry Work,	22	273
Housewifery,	57	521
Irish Crochet Lace,	14	356
Total,	—	3,446
Grand Total of hours of attendance, ... ..	...	25,432

PART VII.—FINANCE

Estimated Income for year 1907-08.

1. Contribution from the Urban District Council (the produce of a rate of 1 <i>d.</i> in the £),	£123
2. Class Fees,	90
3. Subscriptions towards Prize Fund,	10
4. Contributions from the Department,	
(a) From Endowment,	£520
(b) Grants for instruction in Science, Art, &c.,	250
	<hr/> 770
5. Sale of Books and Class Materials, Examination Fees,	16
	<hr/> Total, £1,009

Estimated Expenditure.

1. Salaries of Principal and other Teachers,	£614
2. Scholarships and Prizes,	20
3. Fuel, Light, and Cleaning (including Caretaker's wages),	56
4. Interest on Loan and Insurance,	96
5. Equipment (new and renewals),	30
6. Class Materials,	25
7. Repairs to Premises,	20
8. Printing, Stationery, and Advertising,	30
9. Administrative and Incidental Expenses (including salary of Secretary),	66
	<hr/> £957

With regard to the foregoing estimates, it may be stated that the fixed sources of income are the Penny Rate and the Department's Endowment. The class fees as a rule amount to about £100 per annum. The tendency of the Committee is to reduce the fees, which are fixed at a low rate, except in the case of a few classes, such as Painting from Still Life and Wood Carving which are intended to be self-supporting, while any student who to the knowledge of the Principal is unable to pay even a small fee is admitted free. Under the Revised Scheme for administration and distribution of Grants, the Attendance Grant for instruction in recognised courses of study is expected to become a valuable source of income. Last year the Science and Art Grant amounted to £110, but the corresponding grant this year is confidently expected to exceed £350. On the other hand, while most of the items of expenditure remain fairly steady, in future the amount allocated for salaries of teachers must be increased, if efficiency of the instruction in higher branches is to be maintained.

PART VIII.—CONCLUDING REMARKS.

Almost immediately after the opening of an institution like the Technical School, the inevitable question arises as to whether any good purpose is being served by the expenditure of so much public money. But it is difficult to measure the results. One estimate may be obtained from examination successes ; it may be that such are not the object of the Technical School, but they do give some measure of the earnestness and application of the students, and in Ballymena it has been the custom to recognise only those examining authorities whose certificates have a real and undoubted value. The following table shows the number of successes during five years in examinations conducted by four important examining bodies :—

Year.	1903.	1904.	1905.	1906.	1907.
Board of Education and the Department, ...	64	52	69	89	115
City and Guilds of London Institute, ...	2	4	3	9	13
Society of Arts, ...	8	25	24	20	22

Probably the best testimony comes from the young men and women who have been students, and who find themselves better fitted for their work after attendance at classes ; many who have gone to other centres of industry have acknowledged how much they owe to the school, and many in Ballymena owe improved positions to their industry in the Technical Classes. It has been found however that in some cases where undoubted benefit has accrued to employers by the use of improved methods adopted by their technically instructed workmen, no material advantage has been conferred on them, their wages being as before. Taken generally, the employers and foremen in the town regard the school with favour, and it is realised that the ultimate success of the school will depend on the establishment of a closer bond between the Technical Instruction Committee and the leaders of industry when it is recognised that the common end is the advancement of the material prosperity of the country.

COMMERCIAL EDUCATION.

AN ADDRESS delivered at the School of Commerce, Rathmines.

By GEORGE FLETCHER,

*Assistant Secretary in respect of Technical Instruction, Department of
Agriculture, and Technical Instruction for Ireland.*

In the brief remarks I shall make this evening I wish to draw the attention of this large and representative gathering to the importance of Commercial Education as an essential factor of national efficiency, and to consider commercial education in its relation to other branches of technical education. The expression has been

The Aim of Technical Education. so much misunderstood and misused, that it may be well to enquire—What is the aim of technical education? I should reply in brief

that technical education is a specialised form of instruction based upon a general education and having for its principal object the encouragement of industry. It consists of the application of the principles of Science and Art or of any other branch of organised knowledge to the development of industry and commerce.

Nearly all commercial undertakings are brought face to face with two large classes of problems: one connected with matters concerning manufacture; the other involving questions of a commercial nature. To the problem of economical production the principles of Science and Art have contributed in a remarkable degree. Industries of world wide extent have been built up as a consequence of scientific discoveries, which, when made, appeared almost trivial and insignificant. One need only refer to the stupendous development in the application of electricity to manufacturing processes, or to the products of coal tar as instances of this—instances which have led to the birth and rapid growth of enormous industries, with the consequent employment of millions of workers.

The technical education movement has done much to further the dissemination of a knowledge of the principles upon which manufacturing industries depend, but it cannot be said that a like service has been rendered to commerce as distinct from manufacture. Yet, it must be admitted, that this service is of vital necessity to our national efficiency and well-being. It is not enough that we shall know how

to make a thing—we must know how, when, and where to sell it. I cannot avoid the conclusion that this neglect of a vitally important branch of technical education is due, in a large measure, to the direction of the original impulse given to Technical Education in these islands—to the fact that, for many years, governmental aid to technical education was made exclusively in respect of instruction in the principles of Science and Art. It is not, therefore, to be wondered at if our Technical Schools and Colleges dealt in the past only with these subjects to the almost total exclusion of the vitally important Science of Commerce. The educational machine thus started in a groove continued to run in it. Governmental aid is now, happily, freely available for Commercial Education, and it only needs the influence of public opinion to secure to Commercial Education that position which it should occupy in our education system of to-day, and, when I say public opinion, I use the term in its widest application, for the matter is of importance not only to those concerned with commerce. The well-being of the community, of the whole nation, is closely concerned with the commercial prosperity of the country, and therefore with this essential factor of commercial prosperity.

In my view, one of the most useful of the purposes of such meetings as this is to inform public opinion and to secure a continually widening area of support for the objects of the School. To cause the public—more especially those engaged in commercial undertakings—to realize the necessity—the urgent necessity—for securing to the utmost the advantages of a School of Commerce.

That this is not yet fully realised is not to be wondered at. The commercial supremacy of Great Britain is of long standing, and is—I had almost said *was*—due to a number of circumstances of which certainly not the least important is the great natural advantages possessed by her. But other and newer countries, notably the German Empire and the United States of America have entered the field as powerful and strenuous rivals. Their commerce has advanced by leaps and bounds—they have taken a share of our trade. It is surely a wise thing that, in view of their rapid progress, we should see how they deal with this question of Commercial Education. In doing so we must not be misled by what they were doing a decade ago—for the movement is advancing by rapid strides—we must see what they are doing to day. Just as in these islands, the

earlier efforts in technical education dealt largely with the Sciences concerning production (although some attention was paid to Commercial Education), but during the last few years the business people of these countries have become fully alive to the urgent necessity for organising and disseminating knowledge respecting commerce, particularly as regards its higher branches. During the last ten years a great movement has been taking shape in Germany, having as an objective the founding of Commercial Universities. In 1901 the Commercial Universities of Cologne and Frankfort-on-the-Main were founded as independent institutions, while in 1897 Commercial Universities were established in Leipsic and Aix in connection with the already existing Universities in those towns. These institutions are liberally staffed with professors, and are in a position to lay down stringent conditions for the admission of students. The one at Leipsic was founded by the Leipsic Chamber of Commerce, and that body bore the major portion of the expenditure. The Commercial University of Frankfort was founded by the inhabitants of that town. The sources of its income are instructive.

Dr. Frederic Rose, till recently His Majesty's Consul at Stuttgart, to whose series of Consular Reports we owe so much valuable information respecting Technical Education in Germany gives, in his Report on Commercial Instruction, the following figures

as to the sources of the Frankfort Institution :—

Municipal Council	...	...	£1,500
Institute for Common Weal (Gemeinwohl)	...	...	1,500
Chamber of Commerce	...	...	250
Polytechnic Association	...	...	250
			£3,500

The Commercial University of Cologne owes its existence to Dr. Von Mevissen, who presented sums amounting to £37,000, a further sum of £13,000 being voted by the Municipal Council. It is important to note that these institutions, which are rapidly increasing in number, owe their initiation, not to the Governments of the German States, but to the Chambers of Commerce and the Municipalities. In addition to these are a large number of higher commercial schools of various types, and these are subsidised by the Governments of the various States. It is obvious that German business men realise that,

with the growing complexity of commercial organisation, special educational facilities are absolutely essential to commercial existence. I will only add in regard to Germany that for instruction in the lower branches of commercial work there exist numerous Commercial Continuation Schools, and that attendance at many of these is compulsory.

If we turn to the United States of America we find a corresponding development. There are now in the United States several hundreds of Commercial and Business Colleges of various types, whose numerous students find a ready outlet for their trained energies. Only a few months ago I was in the splendid Wharton School of Finance and Commerce, in connection with the University of Pennsylvania, founded in 1881 by Mr. Joseph Wharton, and offering special training for such vocations as the following :—

**Commercial
Instruction in
America.**

Law and Public Service,
Transportation and Commerce,
Banking and Finance,
Accountancy,

and such like. In each of these groups a specially arranged course of study covering four years is offered. In another part of the city is a Commercial Museum with a Bureau having membership of business men, who for an annual contribution of 100 dollars can secure information respecting markets and raw materials, and having agents all over the Continent.

The development of higher Commercial Education in the United Kingdom may not have been so rapid, but there are signs that business men are beginning to realise the need for action. We have seen the establishment and rapid growth of the London School of Economics, and the formation of Faculties of Commerce in modern Universities, such as Birmingham. In Ireland the University of Dublin has instituted a Diploma in Economics and Commercial

**Commercial
Education at Home.**

Knowledge, and the teaching of commercial subjects has become common in the Technical Schools which have sprung into existence under the direction of the Department of Agriculture and Technical Instruction. The work is slow, for it has to be built up from the ground. The chief need was for qualified teachers, and every year the Department sent several young Irishmen with scholarships to the

London School of Economics to train as commercial teachers, and these when trained return and take up the work of instruction in various parts of Ireland. The Technical Schools are strengthening their commercial sides—Waterford, for example, has established a Commercial Department in its Technical School. The Rathmines School of Commerce was started with a view to meeting in some measure the pressing need for higher commercial training in the important industrial centre of Dublin. I do not hesitate to express the opinion that it is doing a most valuable work. At the time the Urban Council of Rathmines put the Act into operation they might have claimed to establish a Technical School of the ordinary polytechnic type. Urged, however, by wider aims, they agreed with the Department in adopting a scheme under which they would specialise in the direction of commercial education, leaving the other branches of technical education to the already existing City of Dublin Technical Schools. The arrangement seemed an excellent one. A large number of young men and women of Rathmines attend the City of Dublin Technical Schools, while the Rathmines School of Commerce receives students from all parts of the city. Everyone is a gainer by this arrangement. The ratepayers of Rathmines can not only get commercial instruction of a higher character than would be possible in a polytechnic institution, but they also enjoy the advantages of other forms of technical instruction in the City of Dublin Technical Schools. The arrangement may be regarded as an excellent example of co-ordination. The Department are co-partners with the Rathmines Urban District Council in this educational venture. They bore the cost of the equipment of the school, and contribute a sum of £1,000 per annum to the scheme, while Rathmines contributes a penny rate, amounting to some £723 per annum. A fixed income of this nature would not, as will readily be understood, allow of expansion, but I am happy to state that there is now in operation a scheme under which, in addition to this fixed contribution of £1,000 per annum from the Department, there is available a further grant based upon the number of students and the amount and character of the work done. These grants will permit and amply provide for that development to which we may confidently look forward. Already it is taking place.

One other matter, as having first hand knowledge of the work of this School, I cannot refrain from expressing satisfaction at the splendid progress made, progress due in a large measure to the untiring energy of Mr. Oldham, the able Principal of the School. The numbers attending the School are increasing. There are now some 320 students enrolled for

the current session, and most satisfactory of all, the increase is in the higher branches of instruction. I have carefully compared the figures for this session with those of last session, and find that the increase is in such subjects as Business Methods, Accountancy, Accountants' Law, Insurance and the Railway Classes. In the class on Accountants' Law alone there are forty-two students—double the number attending last year. I am convinced that the public spirited policy adopted by the Rathmines Council and Technical Committee is already justified and will continue to be justified in an increasing degree by the results, and the solid advantages to the ratepayers of the township conferred by their school.

I should like to add a word as to the relation of this school to other departments of educational effort. It in no sense deals with general education. It is a technical school with a well-defined specific object. It depends on the primary and secondary schools of the country for its material. It overlaps none of them, and could only do so if these deserted the pursuit of a general education and attempted to confer a special type of education, technical in character. It is needless for me to argue that this is undesirable for it is not at present a danger to education in Ireland.

These remarks, I fear, have a severely utilitarian ring. I make no apology. We are dealing with a utilitarian subject. Those graces of mind and manner we sometimes speak of as culture can flourish best when our material necessities are satisfied. Perhaps I may add that commercial life itself may be dignified and ennobled, as well as rendered more efficient, by that which a well-directed scheme of commercial education may do for it.

FIELD EXPERIMENTS, 1907.

I.—BARLEY.

The experiments in barley cultivation during the past season were in the main a repetition of those carried out in 1901–1906 inclusive. The object is to ascertain the most suitable variety to grow in the barley districts in Ireland, and the results are considered from two standpoints :—

- (a.) Yield and market value of the crops.
- (b.) Their merits for malting and brewing purposes.

The experiments in 1907 were extended to County Kildare, and the manorial tests, which were suspended in 1906, were continued again at one centre in Cork, Queen's County, and Louth, on similar lines to those of 1905.

The results of the barley experiments carried out in 1901–1906, inclusive, indicate that Archer barley is a much more remunerative variety for general cultivation than any of the other varieties tested. The only variety approaching Archer in return per acre was Goldthorpe, but in fifty-one tests carried out in the six years, the average value per acre of this barley was 12s. per statute acre *less* than that of Archer.

Previous to 1906 inquiry in Denmark had revealed the fact that a barley called Prentice, originally imported from England, and apparently identical with Archer, had been exhaustively compared by the Danish Department of Agriculture with Goldthorpe and other varieties, and found to give the best yield. Large bulks of this variety had also been obtained in Denmark by yearly increasing the quantities produced as a result of the cultivation of a single ear. It was therefore decided to compare Prentice barley with our own strain of Archer in 1906. The result of last year's experiment was that Prentice came out decidedly the best, with a money value of 11s 6d. per statute acre better than Archer, which was 9s. 5d. per statute acre better than Goldthorpe. Two causes for the superiority of Prentice have been suggested :—

- (a.) The effect of change of climate from Denmark to Ireland.
- (b.) The process of selection to which the barley had been subjected in Denmark, which resulted in an improvement in yield.

In 1904 the desirability of obtaining for the experimental plots a purer stock of Archer than the commercial supply was so forcibly demonstrated that steps were at once taken to obtain purer bulks of

this and other varieties then under comparison. A large number of ears of Archer were selected from one of the experimental plots in Queen's County in the autumn of 1904, and bulks of grain from these increased yearly, until in 1907 there was a sufficient quantity in hand to sow the plots.

At the same time single ear cultures of Archer, Goldthorpe, and other desirable varieties were commenced in a nursery built for the purpose at Ballinacurra, County Cork.

The scheme of experiments of 1907, was formulated with the idea of still further testing the relative values of Prentice and Archer—the seed for the former being obtained from Denmark, while portion of the produce of the hand-selected Archer seed of 1904 was used for the latter.

In addition to these two varieties, plots sown with Archer seed obtained from Essex, and with Danish Archer grown in Ireland, one year were included.

It was decided to discontinue the experiments with Goldthorpe until a sufficient quantity of seed from the single ear sown in 1905 was available.

As Prentice barley is botanically identical with Archer, for the purposes of this report it is called *Danish Archer*.

The experiments in 1907 were carried out at two centres in Cork, Tipperary, Wexford, and Louth, and at one centre in Queen's County, Carlow, and Kildare, respectively. The size of the plots was the same as in former years, viz., two statute acres each in extent.

All the samples were valued as delivered in Dublin.

CHARACTER OF SEASON, 1907.

The season of 1907 was truly remarkable, possibly unprecedented. The first quarter of the year was very fine and dry, with sufficient frost to pulverise the surface of tilled land. Sowing generally was done much earlier and accomplished under much more favourable conditions than usual. Sufficient rainfall in March and April enabled the young plants to grow vigorously, but the continued moisture of May and June, together with a great lack of sunshine in the latter month, caused an overgrowth of straw. During the warm period of mid-July barley made good progress and gave promise of a splendid yield. Unfortunately the torrential downpours of rain on the 24th and 28th July caused widespread damage by lodging of the straw.

Continued deficiency of warmth in August and frequent rain greatly retarded ripening, and September opened with some cold and rainy days. Thanks to the fine and warm period that then set in the majority

of the crops were gathered in before the subsequent further rainy, sunless period commenced. This lasted the whole of October, and threshing operations were conducted under most trying conditions.

The yield of the barley crop in general was very variable.

The following Table shows in each centre the name of the experimenter, the character of the soil and subsoil, and its previous treatment:—

Name of Centre.	Experimenter.	Character of Soil and Subsoil.	Previous Treatment of Land.
1. Middleton, Co. Cork.	P. McCarthy, Ballinacurra.	Good deep loam. Subsoil—Yellow friable clay. Geol. form.—Carboniferous limestone.	1905, Oats. 1906, Roots, with farmyard manure and artificials.
2. Whitegate, Co. Cork.	R. Hawkins, Whitegate.	Good brownstone loam. Subsoil—Gravel and shale. Geol. form.—Old Red Sandstone.	1905, Oats. 1906, Roots, with farmyard manure and artificials.
3. Nenagh, Co. Tipperary.	J. Wolfe, Rockford.	Good light loam. Subsoil — Gravelly clay. Geol. form.—Carboniferous limestone.	1905, Barley. 1906, Roots, with farmyard manure and artificials.
4. Birr, Co. Tipperary.	J. Willington, St. Kieran's.	Strong loam. Subsoil — Gravelly clay. Geol. form. — Black Carboniferous limestone.	1905, Potatoes. 1906, Wheat.
5. Wexford, Co. Wexford.	W. B. Nunn, Castle Bridge.	Sandy loam. Subsoil—Sand. Geol. form.—Cambrian.	1905, Barley. 1906, Roots, with farmyard manure and artificials.
6. Enniscorthy, Co. Wexford.	P. Brown, Broomland.	Good loam of medium depth. Subsoil—Gravel and clay. Geol. form. — Lower Silurian.	1905, Oats. 1906, Roots, with farmyard manure.
7. Castlingford, Co. Louth.	J. Kearney, Wilville.	Good drift loam. Subsoil—Gravel and yellow clay. Geol. form.—Carboniferous limestone.	1905, Barley. 1906, Roots, with farmyard manure and artificials.
8. Dunleer, Co. Louth.	S. Segrave, Dunany.	Yield omitted as the figures were not considered reliable.	—
9. Monastererevan, Queen's Co.	E. Mulhall, New Inn.	Good deep loam. Subsoil — Limestone gravel. Geol. form.—Carboniferous limestone.	1905, Oats. 1906, Roots, with farmyard manure.
10. Bagenalstown, Co. Carlow.	T. Tennant, Oldtown.	Good deep loam. Subsoil — Limestone gravel. Geol. form.—Carboniferous limestone.	1905, Oats. 1906, Roots, with farmyard manure and artificials.
11. Athy, Co. Kildare.	M. Minch, Rockfield.	Good limestone loam. Subsoil — limestone gravel. Geol. form.—Carboniferous limestone.	1905, Oats. 1906, Roots, with farmyard manure and artificials.

TABLE SHOWING THE YIELD AND VALUES FOR

FARM	Date Sown all Plots.	IRISH ARCHER.				DANISH ex	
		Date Reaped.	Yield per Statute Acre.	Value		Date Reaped.	Yield per Statute Acre.
				Per Barrel.	Per Acre.		
1. P. McCarthy, Ballinacurra, Co. Cork.	Mar. 8th.	Aug. 26th.	Brls. st. 12 4½	s. d. 14 0	£ s. d. 8 11 11	—	Brls. st. 12 5½
Screenings,	—	—	0 3½	10 0	0 2 2	Aug. 26th.	0 4
Total,	—	—	12 8	—	8 14 1	—	12 9½
2. R. Hawkins, Whitegate, Co. Cork.	Mar. 1st.	Aug. 20th.	13 6½	14 0	9 7 8	Aug. 20th.	12 9½
Screenings,	—	—	0 8	10 0	0 5 0	—	0 10½
Total,	—	—	13 14½	—	9 12 8	—	13 4
3. J. Wolfe, Rockford, Nenagh.	Mar. 12th.	Sept. 9th.	10 5	15 6	7 19 10	Sept. 9th.	12 9½
Screenings,	—	—	0 2½	10 0	0 1 7	—	0 3½
Total,	—	—	10 7½	—	8 1 6	—	12 13
4. J. Willington, St. Kieran's, Birr.	Mar. 1st.	Sept. 4th.	9 5½	14 6	6 15 5	Sept. 4th.	9 7
Screenings,	—	—	1 0½	10 0	0 10 4	—	1 1
Total,	—	—	10 6	—	7 5 9	—	10 8
5. W. B. Nunn, Castle Bridge, Wexford.	Mar. 6th.	Aug. 19th.	11 0½	15 3	8 8 2	Aug. 21st.	11 10½
Screenings,	—	—	2 3	10 0	1 1 10	—	1 13
Total,	—	—	13 3½	—	9 10 0	—	13 7½
6. P. Brown, Broomlands, Enniscorthy.	Mar. 5th.	Aug. 22nd.	12 5	15 3	9 17 4	Aug. 22nd.	13 0½
Screenings,	—	—	0 4	10 0	0 2 6	—	0 4½
Total,	—	—	13 3	—	9 19 10	—	13 6
7. J. Kearney, Wilville, Carlingford.	Mar. 26th.	Sept. 9th.	13 4½	15 0	9 19 2	Sept. 9th.	12 15
Screenings,	—	—	0 6	10 0	0 3 9	—	0 4
Total,	—	—	13 10½	—	10 2 11	—	13 3
8. E. Mulhall, New Inn, Monasterovan.	Feb. 28th.	Sept. 9th.	13 2½	15 0	9 17 4	Sept. 9th.	13 1½
Screenings,	—	—	0 8	10 0	0 5 0	—	0 10
Total,	—	—	13 10½	—	10 2 4	—	13 11½
9. T. Tennant, Oldtown, Baginbally.	Feb. 28th.	Aug. 22nd.	14 7	14 9	10 12 11	Aug. 22nd.	14 14½
Screenings,	—	—	1 4	10 0	0 12 6	—	1 1½
Total,	—	—	15 11	—	11 5 5	—	16 0
10. M. Minch, Rockfield, Athy.	Feb. 26th.	Aug. 24th.	10 8½	15 3	8 0 7	Aug. 24th.	10 11
Screenings,	—	—	1 7½	10 0	0 14 8	—	0 14½
Total,	—	—	12 0	—	8 15 3	—	11 9½
Average,	—	—	12 14	—	9 7 0	—	13 0½
Average, 1906,	—	—	12 5½	—	8 13 10	—	—
Average, 1905,	—	—	14 0½	—	10 1 1	—	—
Average, 1904,	—	—	11 6	—	8 4 6	—	—
Average, 1903,	—	—	10 7	—	7 5 9	—	—
Average, 1902,	—	—	12 12½	—	9 7 11	—	—
Average, 1901,	—	—	11 14	—	8 15 3	—	—

NOTE.—The Screenings have been

THE EXPERIMENTAL PLOTS, 1907.

ARCHER. Ireland.				DANISH ARCHER. ex Denmark.				ENGLISH ARCHER			
Value.		Date Reaped.	Yield per Statute Acre.	Value.		Date Reaped.	Yield per Statute Acre.	Value.		Date Reaped.	Yield per Statute Acre.
Per Barrel.	Per Acre.			Per Barrel.	Per Acre.			Per Barrel.	Per Acre.		
<i>s. d.</i> 14 0	<i>£ s. d.</i> 8 12 10	Aug. 21st —	Bris. st. 12 7	<i>s. d.</i> 14 0	<i>£ s. d.</i> 8 14 2	Aug. 26th. —	Bris. st. 12 12	<i>s. d.</i> 14 0	<i>£ s. d.</i> 8 18 6	Aug. 26th. —	Bris. st. 12 12
10 0	0 2 6		0 2½	10 0	0 1 7		0 6	10 0	0 3 9		0 6
—	8 15 4		12 9½	—	8 15 9		13 2	—	9 2 3		—
14 3	8 19 5	Aug. 20th. —	13 5½	14 3	9 10 1	Aug. 20th. —	12 3	14 0	8 10 8	Aug. 20th. —	12 3
10 0	0 6 6		0 8	10 0	0 5 0		0 8	10 0	0 5 0		0 8
—	9 5 11		13 13½	—	9 15 1		12 11	—	8 15 8		—
15 6	9 15 3	Sept. 9th. —	13 0	15 6	10 1 6	Sept. 9th. —	10 3	15 3	7 15 4	Sept. 9th. —	10 3
10 0	0 2 2		0 2½	10 0	0 1 7		0 4	10 0	0 2 6		0 4
—	9 17 5		13 2½	—	10 3 1		10 7	—	7 17 10		—
14 9	6 19 2	Sept. 4th. —	9 12	14 6	7 1 4	Sept. 4th. —	9 8½	14 6	6 13 3	Sept. 4th. —	9 8½
10 0	0 10 7		1 0½	10 0	0 19 4		1 0½	10 0	0 10 4		1 0½
—	7 9 9		10 12½	—	7 11 8		10 9	—	7 8 7		—
15 3	8 17 8	Aug. 17th. —	10 0½	15 3	7 12 11	Aug. 22nd. —	10 0	15 3	7 12 6	Aug. 22nd. —	10 0
10 0	0 19 1		1 15½	10 0	0 19 8		0 14	10 0	0 8 9		0 14
—	9 15 9		12 0	—	8 12 7		10 14	—	8 1 3		—
15 3	9 18 8	Aug. 22nd. —	13 4½	15 3	10 2 6	Aug. 22nd. —	12 5	15 3	9 7 9	Aug. 22nd. —	12 5
10 0	0 2 10		0 4½	10 0	0 2 10		0 4	10 0	0 2 6		0 4
—	10 1 6		13 9	—	10 5 4		12 9	—	9 10 3		—
15 3	9 17 4	Sept. 9th. —	13 2	15 0	9 16 10	Sept. 9th. —	11 9	15 0	8 13 5	Sept. 9th. —	11 9
10 0	0 2 6		0 5	10 0	0 3 1		0 3	10 0	0 1 10		0 3
—	9 19 10		13 7	—	9 19 11		11 12	—	8 15 3		—
15 0	9 16 4	Sept. 9th. —	12 10½	15 0	9 9 10	Aug. 30th. —	12 2	15 0	9 1 11	Aug. 30th. —	12 2
10 0	0 6 3		0 12	10 0	0 7 6		0 7	10 0	0 4 4		0 7
—	10 2 7		13 6½	—	9 17 4		12 9	—	9 6 3		—
15 9	11 3 7	Aug. 22nd. —	14 15	15 0	11 4 1	Aug. 22nd. —	13 8	15 0	10 2 6	Aug. 22nd. —	13 8
10 0	0 10 11		1 1	10 0	0 10 7		0 13½	10 0	0 8 5		0 13½
—	11 14 6		16 0	—	11 14 8		14 6½	—	10 10 11		—
15 3	8 3 0	Aug. 24th. —	11 6½	15 3	8 13 11	Aug. 24th. —	10 8½	15 0	7 17 11	Aug. 24th. —	10 8½
10 0	0 9 1		1 0	10 0	0 10 0		1 7	10 0	0 14 4		1 7
—	8 12 1		12 6½	—	9 3 11		11 15½	—	8 12 3		—
—	9 11 5	—	13 2	—	9 11 11	—	12 0½	—	8 16 1	—	—
—	—	—	13 1	—	9 5 4	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—

valued throughout at 10s. per barrel.

COMPARISON OF THE FOUR BARLEYS TESTED AT ALL CENTRES.

The average yield and money value per statute acre of Irish Archer, Danish Archer (grown in Ireland one year), Danish Archer (freshly imported), and English Archer, are shown in the following table.

For reference similar details of Irish Archer and Danish Archer for 1906, are also given.

VARIETY.	Average Yield of good Corn per Acre.	Average Value of good Corn per Acre.	Percentage of Screenings.	Average Total Value with Screenings.
	Bris. Stns.	£ s. d.	%	£ s. d.
Archer (Irish), .	12 1	8 19 0	6.2	9 7 0
Danish Archer (or Ireland, 1906).	12 5½	9 4 4	5.6	9 11 5
Danish Archer, (freshly imported).	12 6½	9 4 9	5.7	9 11 11
English Archer, .	11 7½	8 9 10	5.2	8 16 1
1906.				
Archer (Irish), .	11 12	8 9 2	4.9	8 13 10
Danish Archer, . (freshly imported).	12 8½	9 0 9	4.4	9 5 4

A comparison of the above figures shows that Danish Archer grown in Ireland one year and Danish Archer freshly imported are equal, and that both are 4s. 6d. per acre better than Irish Archer. The latter, however, shows an improvement, possibly due to the process of selection to which it has been subjected, as the difference in the value of its yield as compared with Danish Archer has been reduced from 11s. 6d. in 1906 to 4s. 6d. in 1907.

The seed of English Archer, as stated above, was obtained from a commercial supply, and was found to be badly mixed. The low place it takes may be due in some measure to this fact.

These experiments with seed of the same variety drawn from different sources have only been carried out for two years in two cases and one year in the other cases, and the figures given above can only be treated as indicating the probable trend of future experiments and not conclusive. It is intended to pursue the investigation in 1908, when seed of a single ear culture of Archer will be available for seeding the plots. Goldthorpe barley will also be included in next year's trials.

As to the effect of change of soil and climate on seed barley, the conclusions which may at present be drawn are, that Irish Archer grown for four successive seasons in Ireland has improved its position, and Danish Archer grown one season in Ireland has maintained it as compared with Danish Archer freshly imported.

MANURIAL TESTS.

These were carried out at one centre in each of the three following counties :—Cork, Louth, and Queen's County.

Each plot was two acres in extent and was divided into eight sub-plots of $\frac{1}{4}$ acre. The plots at the three centres were sown with Danish Archer barley obtained from the same source.

The following table shows the character of the soil and sub-soil, and the previous treatment of the land at each centre.

Experimenter.	Centre.	Character of Soil.	Previous Crops.
1. J. Kearney,	Carlingford, Co. Louth.	Good drift loam. Subsoil—Gravel and yellow clay.	1905, Roots. 1906, Oats.
2. M. Murnane,	Middleton, Co. Cork.	Good strong loam. Subsoil—Yellow clay.	1905, Roots. 1906, Barley.
3. R. Luttrell,	Monasterewan, Queen's Co.	Sandy loam. Subsoil—Sand and limestone gravel.	1905, Roots. 1906, Barley.

The following Table shows the yield per Statute Acre, Price per Barrel, and the Profit or Loss per Acre resulting from the use of Artificial Manures alone and in combination.

FARM.	No Manure.				1 cwt. Sulphate of Ammonia.				3 cwt. Superphosphate.				3 cwt. Kainit.			
	Yield per Statute Acre.	Value per Barrel.	Percentage of Screenings.	Total value with Screenings.	Yield per Statute Acre.	Value per Barrel.	Percentage of Screenings.	Total value with Screenings.	Yield per Statute Acre.	Value per Barrel.	Percentage of Screenings.	Total value with Screenings.	Yield per Statute Acre.	Value per Barrel.	Percentage of Screenings.	Total value with Screenings.
No.	Brls. st.	s. d.	%	£ s. d.	Brls. st.	s. d.	%	£ s. d.	Brls. st.	s. d.	%	£ s. d.	Brls. st.	s. d.	%	£ s. d.
I.	11 4	15 0	20	8 11 3	13 12	14 9	35	10 7 10	11 12	15 0	20	8 18 9	9 12	15 0	25	7 8 9
II.	6 12	14 6	307	6 7 10	6 0	14 6	371	6 4 6	9 2	14 6	183	7 13 7	9 4	14 6	177	7 14 1
III.	8 6	14 6	75	6 8 3	9 4	14 6	69	7 0 11	7 4	14 9	64	5 11 11	8 8	14 9	53	6 10 8
Cost of Manures per Acre, ...				...	14s. 6d.				10s. 6d.				8s. 0d.			
Profit or Loss resulting from application of Manure, ...				...	Profit, ... £1 1s. 1d.				Loss, ... 3s. 0d.				Loss, ... £1 0s. 6d.			
Farm I., ...				...	Loss, ... 17s. 10d.				Profit, ... 15s. 3d.				Profit, ... 18s. 3d.			
Farm II., ...				...	Loss, ... 14s. 10d.				Loss, ... £1 6s. 10d.				Loss, ... 5s. 7d.			

NOTE:—The Screenings have been valued throughout at 10s. per barrel.

FARM.	1 cwt. Sulphate of Ammonia ; 3 cwt. Superphosphate.				1 cwt. Sulphate of Ammonia ; 3 cwt. Kainit.				3 cwt. Superphosphate ; 3 cwt. Kainit.				1 cwt. Sulphate of Ammonia ; 3 cwt. Superphosphate ; 3 cwt. Kainit.			
	Yield per Statute Acre.	Value per Barrel.	Percentage of Screen- ings.	Total value with Screen- ings.	Yield per Statute Acre.	Value per Barrel.	Percentage of Screen- ings.	Total value with Screen- ings.	Yield per Statute Acre.	Value per Barrel.	Percentage of Screen- ings.	Total value with Screen- ings.	Yield per Statute Acre.	Value per Barrel.	Percentage of Screen- ings.	Total value with Screen- ings.
No.	Bris. st.	s. d.	%	£ s. d.	Bris. st.	s. d.	%	£ s. d.	Bris. st.	s. d.	%	£ s. d.	Bris. st.	s. d.	%	£ s. d.
I.	11 8	15 0	21	8 15 0	11 8	15 0	18	8 14 8	11 0	15 0	19	8 17 2	11 6	15 0	15	8 12 4
II.	8 12	14 6	26.3	7 18 1	9 10	14 6	21.4	8 5 10	9 12	14 6	13.3	7 16 4	9 14	14 6	18.5	8 5 8
III.	8 4	14 9	7.0	6 7 11	9 2	14 9	7.0	7 1 5	7 4	14 9	6.8	5 12 3	9 2	14 9	9.6	7 4 4
Cost of Manures per Acre, £1 5s. 0d.				£1 2s. 6d.				18s. 6d.				£1 13s. 0d.				
Profit or Loss resulting from application of Manure :— Farm I. Loss, ... £1 1s. 3d.				Loss, ... 19s. 1d.				Loss, ... £1 2s. 7d.				Loss, ... £1 1s. 11d.				
Farm II. Profit, ... 5s. 3d.				Profit, ... 5s. 6d.				Profit, ... 10s. 0d.				Profit, ... 4s. 10d.				
Farm, III. Loss, ... £1 5s. 4d.				Loss, ... 9s. 4d.				Loss, ... £1 14s. 6d.				Loss, ... 15s. 11d.				

NOTE:—The Screenings have been valued throughout at 10s. per barre

NOTES ON MANURIAL EXPERIMENTS.

Unfortunately all the plots at Farms 2 and 3 were badly laid by the heavy rains of July, and the quality and quantity of grain was consequently detrimentally affected. Especially was this the case at Farm 2, which accounts for the very high percentage of screening recorded at this centre.

Geographically and in description of soil the three centres were as diversified as it was possible to find, and the results obtained are a striking example of the different requirements of the three classes of soil—Drift loam, strong loam, and sandy loam. Some of the differences at least may be accounted for by the previous treatment of the land, and consequently its fertility at the time of experimenting, and emphasise the necessity of every farmer testing his own land by small experiments and ascertaining himself its immediate requirements before purchasing and applying artificial manures.

In the case of Farm 1 the soil was in a high state of fertility, and the application of sulphate of ammonia was the only manure which gave a remunerative return. Phosphatic and potassic manures were evidently not required. The return obtained from sulphate of ammonia indicates that when potassic and phosphatic constituents of a soil are sufficiently abundant a nitrogenous manure like sulphate of ammonia can be beneficially applied.

Farm 2 represents a case exactly opposite to 1. Here mineral manures especially kainit have effected a profitable return.

On Farm 3 no profit from any plot was obtained. The whole of the plots, after becoming laid in July, were badly overgrown with weeds, which greatly retarded the barley from ripening and filling properly. The smallest loss is sustained by the ammonia plot, which is followed closely by the kainit plot. The large loss sustained by superphosphate both alone and in combination with the two other manures points to an already liberal and sufficient supply of phosphate in the soil.

The Department desire to express their indebtedness to Mr. J. H. Bennett, Ballinacurra, County Cork, who has for the past seven years directed the work in connection with the Experimental Plots, and to Messrs. A. Guinness, Son and Co., Ltd., who contributed the major portion of the cost of the experiments.

II.—MEADOW HAY.

The experiments on the manuring of meadow hay in 1907 were similar to those of the six preceding years, with the addition of an extra plot, on which the kainit was applied before the 30th November. The experiments were carried out at fourteen centres in the counties of Antrim, Carlow, Kildare, Limerick, Londonderry, and Tipperary.

The plan of the experiment, with full details as to centres, manures applied, yield per acre, and estimated profits, is given in the table on page 290.

The following table summarises the results obtained :—

Plot No.	Manures applied per statute acre.	Average Yield of Hay per statute acre.	Increase due to Manures.	Value of Increase at 2s. per cwt.	Cost of Manures.	Estimated Profit per statute acre.
		T. C. Q.	T. C. Q.	£ s. d.	£ s. d.	£ s. d.
1	No manure,	1 12 3	—	—	—	—
2	Ten tons of farmyard manure, . .	2 8 3	0 16 0	1 12 0	2 0 0	0 8 0 (Loss).
3	One cwt. nitrate of soda, . . .	1 18 3	0 6 0	0 12 0	0 12 6	0 0 6 (Loss).
4	One cwt. nitrate of soda, 2 cwt. of superphosphate.	2 2 3	0 10 0	1 0 0	0 18 6	0 1 6
5	One cwt. nitrate of soda, 2 cwt. superphosphate, 2 cwt. kainit.	2 9 3	0 17 0	1 14 0	1 4 0	0 10 0
6	One cwt. nitrate of soda, 2 cwt. superphosphate, 2 cwt. kainit (kainit applied not later than November 30th).	2 8 2	0 15 3	1 11 6	1 4 0	0 7 6

The hay crop of 1907 was much the same as that of 1906, and the results obtained agree very closely with those of that and the five preceding years in which the experiments were carried out. The figures in the above table show that on the average of all the centres the heaviest yield of hay was obtained from the plot to which was applied, at the rate of 5 cwts. per acre, a mixture containing each of the three important ingredients of manures, viz., nitrogen, phosphates, and potash. While this is true of the average results, it has to be noted that at six individual centres the highest yield was obtained from the plot to which farmyard manure was applied at the rate of ten tons per acre.

MEADOW HAY EXPERIMENT:--MANURIAL TEST FOR ONE YEAR.

Table showing the Returns per Statute Acre from each Centre.

Name and Address of Farmer.	County.	Character of Soil.	Plot 1.	Plot 2.	Plot 3.	Plot 4.	Plot 5.	Plot 6.
			No Manure.	10 tons Farm yard Manure.	1 cwt. Nitrate of Soda.	1 cwt. Nitrate of Soda, 2 cwt. Super- phosphate.	1 cwt. Nitrate of Soda, 2 cwt. Super- phosphate, 2 cwt. Kainit.	1 cwt. Nitrate of Soda, 2 cwt. Super- phosphate, 2 cwt. Kainit (applied not later than Nov. 30th).
			T. C. Q.	T. C. Q.	T. C. Q.	T. C. Q.	T. C. Q.	T. C. Q.
R. Gregg, Broughshane, Ballymena.	Antrim.	Clay loam.	1 12 1	2 3 1	2 0 1	2 2 0	2 11 2	2 10 3
— Humphreys, Balla- salla, Hacketstown.	Carlow.	Light, moory.	1 2 0	1 10 3	1 12 2	1 12 3	1 13 2	1 12 3
— Doyle, Craun, Clonegal.	"	Medium loam.	1 10 0	2 6 0	2 3 1	2 2 1	2 6 2	2 2 1
J. Doyle, Sillagh, Bally- more.	Kildare.	Gravelly loam.	1 3 0	2 1 0	1 8 1	1 18 3	1 18 3	1 17 2
G. Jackson, Knockmagee, Carlow.	"	Loam.	1 16 2	3 16 2	1 19 0	2 2 1	2 14 1	2 12 1
— Masterson, Ardelles, Kilmead.	"	Strong loam.	1 11 1	2 2 3	1 13 2	1 16 3	2 5 1	2 3 0
E. Taaffe, Donadea, Kil- cock.	"	Strong clay.	1 12 1	2 9 3	1 13 0	2 2 0	2 2 2	2 4 1
J. Irwin, Damhead, Cole- raigne.	Liderry.	Strong clay loam.	2 5 0	2 15 3	2 10 2	2 14 3	3 9 0	—
W. Shannon, Cashquin, Derry.	"	Clay loam.	2 5 2	3 7 0	2 11 1	2 13 2	3 0 2	3 3 0
J. Meagher, Laha, Tem- plemore.	Tipperary N.	Light loam.	1 10 1	1 19 1	1 11 3	1 14 0	2 5 0	—
P. C. Fogarty, Killoran, Moyn.	"	do.	0 19 2	1 10 0	1 7 1	1 9 2	2 4 2	—
J. O'Sullivan, Knocklofty, S.	Tipperary S.	do.	1 4 2	2 13 0	1 10 1	1 17 2	2 8 3	2 8 1
The Rt. Hon. Lord Mont- eagle, Foynes.	Limerick.	Alluvial.	1 12 3	2 6 1	2 3 0	2 6 0	2 10 1	2 11 3
D. O'Brien, Cabrimoyle, Ardagh.	"	Limestone loam.	2 15 0	4 0 0	2 19 0	3 7 1	3 7 3	3 7 3
Average Yield per statute acre.	—	—	1 12 3	2 8 3	1 18 3	2 2 3	2 9 3	2 8 2
Increase due to Manures.	—	—	—	0 16 0	0 6 0	0 10 0	0 17 0	0 15 3
Value of Increase: Hay at 2s. per cwt.	—	—	—	£ s. d. 1 12 0	£ s. d. 0 12 0	£ s. d. 1 0 0	£ s. d. 1 14 0	£ s. d. 1 11 6
Cost of Manures.	—	—	—	2 0 0	0 12 6	0 18 6	1 4 0	1 4 0
Estimated Profit per statute acre.	—	—	—	0 8 0 (Loss.)	0 0 6 (Loss.)	0 1 6	0 10 0	0 7 6

The general result, therefore, indicates that the mixture applied on plot 5 may be relied on to give a substantial, and in most cases, a profitable increase in the crop.

On plot 4 the same mixture, but without the kainit, was applied, and sometimes this is more profitable than the complete mixture. Such a result may be expected on land which is in good heart; but even then the increase in the hay crop does not fully represent the advantages derived from manures containing potash, as these are also seen in the aftergrass, where the growth of clovers and bottom grasses is stimulated by the use of such manures.

The following table shows briefly the results obtained during the past six seasons :—

—		No Manure.	Ten tons of Farm- yard Manure.	One cwt. Nitrate of Soda, 2 cwt. Super- phosphate, 2 cwt. Kainit.	One cwt. Nitrate of Soda, 2 cwt. Super- phosphate.	One cwt. Nitrate of Soda.
		T. C. Q.	T. C. Q.	T. C. Q.	T. C. Q.	T. C. Q.
1901	{ Average yield per statute acre,	1 8 2	1 18 2	2 8 3	2 5 0	1 16 3
	{ Estimated profit per acre,	—	£ s. d. 0 15 0 (Loss)	£ s. d. 1 8 6	£ s. d. 0 19 3	£ s. d. 0 10 0
1902	{ Average yield per statute acre,	T. C. Q. 1 10 0	T. C. Q. 1 19 2	T. C. Q. 2 6 2	T. C. Q. 2 0 2	T. C. Q. 1 14 3
	{ Estimated profit per acre,	—	£ s. d. 0 14 4 (Loss)	£ s. d. 1 1 0	£ s. d. 0 11 0	£ s. d. 0 3 3
1903	{ Average yield per statute acre,	T. C. Q. 1 9 0	T. C. Q. 2 1 2	T. C. Q. 2 7 2	T. C. Q. 2 2 2	T. C. Q. 1 15 0
	{ Estimated profit per acre,	—	£ s. d. 0 8 9 (Loss)	£ s. d. 1 4 3	£ s. d. 0 16 9	£ s. d. 0 4 6
1904	{ Average yield per statute acre,	T. C. Q. 1 8 1	T. C. Q. 1 19 3	T. C. Q. 2 3 3	T. C. Q. 1 19 0	T. C. Q. 1 13 2
	{ Estimated profit per acre,	—	£ s. d. 0 11 3 (Loss)	£ s. d. 0 16 9	£ s. d. 0 9 9	£ s. d. 0 1 6
1905	{ Average yield per statute acre,	T. C. Q. 1 11 1	T. C. Q. 2 0 0	T. C. Q. 2 6 0	T. C. Q. 2 2 1	T. C. Q. 1 18 3
	{ Estimated profit per acre,	—	£ s. d. 0 18 0 (Loss)	£ s. d. 0 15 0	£ s. d. 0 10 6	£ s. d. 0 8 3
1906	{ Average yield per statute acre,	T. C. Q. 1 13 3	T. C. Q. 2 3 0	T. C. Q. 2 11 0	T. C. Q. 2 6 3	T. C. Q. 2 1 0
	{ Estimated profit per acre,	—	£ s. d. 1 1 6 (Loss)	£ s. d. 0 10 6	£ s. d. 0 7 6	£ s. d. 0 2 0
1907	{ Average yield per statute acre,	T. C. Q. 1 12 3	T. C. Q. 2 8 3	T. C. Q. 2 9 3	T. C. Q. 2 2 3	T. C. Q. 1 18 3
	{ Estimated profit per acre,	—	£ s. d. 0 8 0 (Loss)	£ s. d. 0 10 0	£ s. d. 0 1 6	£ s. d. 0 0 6 (Loss)

The use of nitrate of soda alone is not to be recommended, unless under exceptional circumstances.

The 10 tons of farmyard manure applied on plot 2 gave on the average the satisfactory increase of 16 cwt. per acre, and, as mentioned above,

in six cases yielded the heaviest crop. This satisfactory increase is probably due to the wet season, none of the manurial constituents being lost through the drying up of the manure on the surface of the ground.

If the hay crop is charged with the full cost of the manure (4s. per ton), a loss of 8s. per acre is incurred; but if, on the other hand, only half the cost is charged to the hay crop, a profit of 12s. is obtained. In this connection it should be remembered that, as in the case of the results obtained from the application of a potash manure, the actual increase in the weight of hay does not fully represent the beneficial effects of an application of dung. The growth of bottom or pasture grasses and clovers is very favourably influenced by a dressing of farm-yard manure.

As mentioned above, an extra plot was included in this season's trials, viz., plot 6, to which was applied the same mixtures as on plot 5, the kainit, however, being applied not later than the 30th November.

This test was carried out at 11 centres. The following table shows briefly the average results obtained :—

Plot No.	Manures Applied per Statute Acre.	Average yield of Hay per Statute Acre.	Increase due to Manures.	Value of Increase at 2s. per cwt.	Cost of Manures.	Estimated Profit per Statute Acre.
		T. C. Q.	T. C. Q.	£ s. d.	£ s. d.	£ s. d.
(1)	No Manure,	1 13 1	—	—	—	—
(5)	1 cwt. Nitrate of Soda, 2 cwt. Superphosphate, 2 cwt. Kainit.	2 9 0	0 15 3	1 11 6	1 4 0	0 7 6
(6)	1 cwt. Nitrate of Soda, 2 cwt. Superphosphate, 2 cwt. Kainit (Kainit applied not later than 30th November).	2 8 2	0 15 1	1 10 6	1 4 0	0 6 6

So far as conclusions may be drawn from the results of one year's experiments, it would appear that no advantages are to be obtained through the early application of the kainit.

Owing to the high price of artificial manures during the past two years, the profits resulting from the use of the various manurial dressings are somewhat lower than those obtained in previous years. The table on page 3 shows that in each year the heaviest yield and the greatest profit have been obtained from the plot receiving the complete manurial dressing, and farmers may therefore be recommended to apply to their meadow lands the following mixture per statute acre :—

1 cwt. nitrate of soda,
2 cwt. superphosphate,
2 cwt. kainit.

III.—POTATOES.

A.—MANURIAL TEST.

The experiments on the manuring of potatoes carried out in 1907 were similar to those of preceding years, except that in the last two years an additional Plot (No. 7) was included with the object of testing the effect of sulphate of potash in comparison with muriate of potash. Briefly stated, the object of these experiments is to indicate what use can be made of artificial manures by way of supplementing applications of farmyard manure to the potato crop.

In Table I. (pp. 298–301) will be found the complete results of the experiments conducted at fifty-nine centres in Counties Antrim, Armagh, Carlow, Cork, Dublin, Fermanagh, Galway, Kerry, King's County, Leitrim, Limerick, Londonderry, Longford, Louth, Mayo, Monaghan, Queen's County, Roscommon, Tipperary, Waterford, and Wicklow. In each county the experiments were under the direct supervision of the county agricultural instructor.

While the results obtained at individual centres will repay careful study, especially in view of the fact that the character of the soil and the variety of potato grown at each is given, yet, when drawing general conclusions, it will be safer to be guided in the main by the average results. For the sake of easy reference these are reproduced in the following table :—

Plot.	Manure applied per statute acre.	Average total yield of potatoes per statute acre.		Increase due to Manures.	Cost of Manures.	Estimated profit per statute acre.
		Tons.	Cwt.			
1	No manure.	3	12	—	£ — 0	£ — 0
2	20 tons farmyard manure, . . .	8	11	4 19	4 0 0	5 8 0
3	15 tons farmyard manure, . . .	7	13	4 1	3 0 0	4 16 0
4	15 tons farmyard manure, 1 cwt. sulphate of ammonia, . . .	8	14	5 2	3 15 0	5 16 0
5	15 tons farmyard manure, 1 cwt. sulphate of ammonia, 4 cwt. superphosphate, . . .	9	9	5 17	4 7 0	6 15 0
6	15 tons farmyard manure, 1 cwt. sulphate of ammonia, 4 cwt. superphosphate, 1 cwt. muriate of potash, . . .	10	5	6 13	4 17 0	7 14 0
7	15 tons farmyard manure, 1 cwt. sulphate of ammonia, 4 cwt. superphosphate, 1 cwt. sulphate of potash, . . .	10	3	6 11	4 18 0	7 10 0

In calculating the profits obtained, the following prices have been assigned to the different manures :—Farmyard manure, 4s. per ton ; sulphate of ammonia, £15 per ton ; superphosphate, £3 per ton ; muriate of potash, £10 per ton and sulphate of potash, £11 per ton. The figures in the above table are largely confirmatory of those

obtained in previous years. Each application of manure, or mixture of manures, has produced a large increase in the crop. The artificial manures have yielded a considerable profit per acre; the amount does not differ very materially from that obtained in 1906, as the next table shows. The dressing of 15 tons of dung has produced a crop only 18 cwt. less than that obtained when a heavier dressing is used, while when the lighter dressing is supplemented by the addition of 1 cwt. sulphate of ammonia the difference between the two plots becomes 3 cwt. in favour of the lighter dressing.

These experiments fully justify the advice given in previous reports that, as a general rule, and especially where farmyard manure is limited in amount, farmers should apply the latter in more moderate quantities, and supplement it with suitable artificial manures. Now the question arises, What are the "suitable" artificial manures? An answer is furnished from the figures contained in the following table:—

Plot.	Manure applied per statute acre.	Total Yield of Potatoes per acre.	Increase over Yield from 15 tons Dung.	Cost of Manures in excess of 15 tons Dung.	Estimated Profit from use of artificials.	Estimated Profit from use of same artificials in 1906.
		Tons. Cwt.	Tons. Cwt.	£ s. d.	£ s. d.	£ s. d.
3	15 tons farmyard manure.	7 13	—	—	—	—
4	15 tons farmyard manure. 1 cwt. sulphate of ammonia.	8 14	1 1	0 15 0	1 0 0	0 6 0
5	15 tons farmyard manure. 1 cwt. sulphate of ammonia. 4 cwt. superphosphate.	9 9	1 16	1 7 0	1 19 0	1 9 0
6	15 tons farmyard manure. 1 cwt. sulphate of ammonia. 4 cwt. superphosphate. 1 cwt. muriate of potash.	10 5	2 12	1 17 0	2 18 0	3 1 0
7	15 tons farmyard manure. 1 cwt. sulphate of ammonia. 4 cwt. superphosphate. 1 cwt. sulphate of potash.	10 3	2 10	1 18 0	2 14 0	2 10 0

These figures show that the most suitable mixture of artificial manures that can be used to supplement a moderate application of dung is one which is complete, or, in other words, one which contains nitrogen, phosphates, and potash. The questions as to what quantity of each ingredient the mixture should contain, and in what form each ingredient should be present, may well constitute subjects for future investigation, but in the meantime farmers may safely be urged to try the mixture as applied to plot 6. This conclusion is very considerably strengthened when the results of last year's experiments are compared

with those of similar experiments conducted during the five previous years, as given in the following table:—

Manures applied per Statute Acre.	1901.		1902.		1903.		1904.		1905.		1906.		1907.	
	Total Yield of Potatoes from use of Manures, per Acre.	Esti- mated Profit from use of Manures.	Total Yield of Potatoes from use of Manures, per Acre.	Esti- mated Profit from use of Manures.	Total Yield of Potatoes from use of Manures, per Acre.	Esti- mated Profit from use of Manures.	Total Yield of Potatoes from use of Manures, per Acre.	Esti- mated Profit from use of Manures.	Total Yield of Potatoes from use of Manures, per Acre.	Esti- mated Profit from use of Manures.	Total Yield of Potatoes from use of Manures, per Acre.	Esti- mated Profit from use of Manures.	Total Yield of Potatoes from use of Manures, per Acre.	Esti- mated Profit from use of Manures.
No Manure.	T. C. 4 4	£ s. d. — —	T. C. 4 7	£ s. d. — —	T. C. 3 1	£ s. d. — —	T. C. 3 12	£ s. d. — —	T. C. 4 13	£ s. d. — —	T. C. 3 12	£ s. d. — —	T. C. 3 12	£ s. d. — —
20 tons Farmyard Manure.	10 13	8 11 0	8 18	4 16 0	8 2	5 14 0	8 14	5 19 0	10 3	6 13 0	7 19	4 2 0	8 11	5 8 0
15 tons Farmyard Manure.	9 15	7 14 0	7 19	4 3 0	7 9	5 9 0	7 16	5 4 0	9 1	5 11 0	7 6	4 1 0	7 13	4 16 0
15 tons Farmyard Manure, 1 cwt. Sulphate of Am- monia.	10 16	8 2 6	8 19	5 6 6	8 6	6 8 6	8 10	5 17 6	9 16	6 9 6	7 17	4 7 0	8 14	5 16 0
15 tons Farmyard Manure, 1 cwt. Sulphate of Am- monia, 4 cwt. Su- perphosphate.	11 12	10 3 0	9 16	6 3 6	9 10	8 2 6	9 9	6 19 6	10 5	6 12 6	8 16	5 10 0	9 9	6 15 0
15 tons Farmyard Manure, 1 cwt. Sulphate of Am- monia, 4 cwt. Su- perphosphate, 1 cwt. Muriate of Potash.	12 1	10 1 0	10 11	7 5 0	10 5	9 2 0	10 9	8 10 0	11 5	8 3 0	9 18	7 2 0	10 5	7 14 0
15 tons Farmyard Manure, 1 cwt. Sulphate of Am- monia, 4 cwt. Su- perphosphate, 1 cwt. Sulphate of Potash.	—	—	—	—	—	—	—	—	—	—	9 13	6 11 0	10 3	7 10 0

B.—VARIETY TEST.

This experiment, designed to test the relative cropping capabilities of different varieties of potatoes, was conducted at thirty-one centres in Counties Antrim, Armagh, Carlow, Dublin, Galway, Kerry, Kildare, King's County, Leitrim, Londonderry, Longford, Mayo, Queen's County, Tipperary, Westmeath, and Wicklow. The full returns of all the varieties grown at each centre are given in Table II. (pp. 302-305), together with the average yield per statute acre, and that of the same varieties in similar experiments conducted in the six previous years.

As all the varieties were not grown at each centre, an accurate comparison between them cannot be drawn from the average figures stated in the table. A reliable comparison is, however, obtained if the yields of varieties grown at the same centres are compared.

The following summary of the results comprised in Table II. is given for convenient reference :—

Variety of Potato.	No. of Tests.	Average Total Yield per Statute Acre.	
<i>(Main Crop Varieties.)</i>		Tons.	Cwt.
Factor,	10	9	12
Up to Date,	31	9	5
Duchess of Cornwall,	18	9	3
Old Champion,	27	8	17
Northern Star,	27	8	8
Champion II.,	15	8	5
Evergood,	20	8	4
Beauty of Bute,	26	8	3
Black Skerries,	24	7	7
Langworthy,	21	7	1
<i>(Mid-Season Varieties.)</i>			
British Queen,	25	8	19
Abundance,	10	8	9
Royal Kidney,	17	8	0

C.—SPROUTING SEED POTATOES.

Late Varieties.

During the past season these experiments were carried out in 16 counties at 67 centres. At each centre the tests were carried out

under similar conditions as to soil, manuring, variety, and cultivation, the only difference being that the seed for one plot was sprouted (as explained in Leaflet No. 58), and the seed for the other plot was not. The sprouted seed was boxed not earlier than 31st January.

TABLE showing RESULTS OF EXPERIMENTS carried out in 1907 at sixty-seven centres.

COUNTY.	No. of Experiments.	Average Yield per Statute Acre.						Average gain in yield due to Sprouting.
		Sprouted Potatoes.			Un-sprouted Potatoes.			
		Sale-able.	Small.	Total.	Sale-able.	Small.	Total.	
		T. C.	CWTS.	T. C.	T. C.	CWTS.	T. C.	T. C.
Antrim.	9	12 1	38	13 19	9 4	41	11 5	2 14
Armagh,	6	10 10	31	12 18	9 16	34	11 11	0 10
Cork E.,	2	9 1	36	10 17	5 15	45	8 0	2 17
Fermanagh,	6	6 16	39	8 15	5 6	36	7 2	1 13
King's County,	5	9 10	42	11 12	6 0	65	9 5	2 7
Leitrim,	1	6 0	17	6 17	5 10	21	6 11	0 6
Limerick,	2	10 9	36	12 5	7 19	37	9 16	2 4
Londonderry,	15	7 5	39	9 4	5 1	35	6 16	2 8
Longford,	2	7 2	40	9 2	4 11	46	6 17	2 5
Mayo,	3	10 5	51	12 16	7 18	69	11 7	1 9
Monaghan,	3	8 18	36	10 11	6 19	56	9 15	0 19
Rosecommon,	5	—	—	11 7	—	—	9 10	1 17
Tipperary N.,	1	7 15	8	8 3	4 6	9	4 15	3 8
Tipperary S.,	2	8 1	61	11 2	5 14	72	9 6	1 16
Waterford,	4	11 10	43	13 13	7 19	28	9 8	4 5
Wicklow,	1	14 12	28	16 0	12 14	18	13 12	2 8

SUMMARY OF RESULTS OF Experiments on the Sprouting of Late Potatoes in 1903, 1904, 1905, 1906, and 1907.

—	No. of Centres.	Yield per Statute Acre.		Average gain in yield due to Sprouting.
		Sprouted Seed.	Unsprouted Seed.	
		T. C.	T. C.	T. C.
1903.	12	11 1	9 8	1 13
1904.	34	11 6	8 13	2 13
1905.	91	12 17	10 16	2 1
1906.	67	11 9	9 2	2 7
1907.	67	10 6	8 6	2 0

POTATO EXPERIMENT.

TABLE I.—SHOWING THE RETURNS I

Name and Address of Farmer.	County.	Character of Soil.	Variety of Potato
J. Gage, Loughill, Cloughmills,	Antrim, ..	Medium loam, ..	Champion, ..
T. Linton, Killycowan, Glarryford, ..	Do., ..	Loam, ..	Up-to-date, ..
R. M'Kinney, Deffrick, Dervock, ..	Do., ..	Medium loam, ..	Beauty of Bute, ..
— Coutter, Cladmore,	Armagh, ..	Loam (slightly gravelly), ..	Up-to-date, ..
H. O'Hare, Mavemacullen,	Do., ..	Medium loam, ..	Black Skerry, ..
J. Joyce, Carrigleade, Graigue-na-Managh, ..	Carlow, ..	Do., ..	Old Champion, ..
J. Webster, Ballykennan, Myshall, ..	Do., ..	Do., ..	Up-to-date, ..
C. Lenihan, Dooneens, Millstreet, ..	Cork, ..	Strong loam, ..	Old Champion, ..
M. Morton, Kilberehort, Freemount, Charleville, ..	Do., ..	Clay loam, ..	Up-to-date, ..
J. Murphy, Killma, Killyavallen, ..	Do., ..	Light loam, ..	Old Champion, ..
T. O'Sullivan, Cloughduv, Crookstown, ..	Do., ..	Medium loam, ..	Champion, ..
Do.,	Do., ..	Do., ..	Up-to-date, ..
P. O'Connell, Kilumney, Ovens,	Do., ..	Do., ..	Duchess of Cornwa
Do.,	Do., ..	Do., ..	Champion, ..
C. Dodd, Castlemote, Cloghnan,	Dublin, ..	Do., ..	Bountiful, ..
J. Seagrave, Coolmeane, Mulluddert, ..	Do., ..	Light loam, ..	Up-to-date, ..
J. J. Lawlor, Irishtown House, Clondalkin, ..	Do., ..	Strong loam, ..	Do., ..
M. Byrne, Rockville House, Kilternan, ..	Do., ..	Loam, ..	Scottish Triumph, ..
T. Crawford, Knockroe, Irvinestown, ..	Fermanagh, ..	Medium loam, ..	Old Champion, ..
M. Graham, Drummuck, Lisnakea,	Do., ..	Strong loam, ..	Up-to-date, ..
M. Hallinan, Craughwell,	Galway, ..	Clay loam, ..	Champion, ..
P. Finerty, New Inn, Woodlawn,	Do., ..	Gravelly loam, ..	Do., ..
The Monastery, Brooklodge, Ballyglunin, ..	Do., ..	Moory loam, ..	Do., ..
E. P. O'Brien, Leitrim House, Edenderry, ..	King's, ..	Sandy loam, ..	Do., ..
W. Kinsella, Cloneygown, Portarlington, ..	Do., ..	Stiff clay, ..	Beauty of Bute, ..
B. Winters, Drumeong, Kilturid,	Leitrim, ..	Sandy loam, ..	Champion, ..
P. Wynn, Drumharkin, Carrick-on-Shannon, ..	Do., ..	Peaty loam, ..	Do., ..
J. M'Garry, Corduff, Dromod,	Do., ..	Clayey loam, ..	Champion (Scotcl
— Bannantyne, Fanningstown Castle, Patrick's well, ..	Limerick, ..	Limestone loam, ..	Beauty of Bute, ..
William M'Collum, Drummooon, Coleraine, ..	Londonderry, ..	Medium loam, ..	Up-to-date, ..
H. Brewster, Myroe, Limavady,	Do., ..	Clay loam, ..	Do., ..
E. M'Gerr, Esker, Longford,	Longford, ..	Clay, ..	Champion, ..
P. Brady, Galsha, Aughnacliffe,	Do., ..	Gravelly loam, ..	Do., ..
A. Jeffers, Drumeek, Castlebellingham, ..	Louth, ..	Light loam, ..	British Queen, ..
D. J. Rath, Clogher Head, Drogheda, ..	Do., ..	Do., ..	Up-to-date, ..
J. Woods, Piedmont, Dundalk,	Do., ..	Do., ..	Do., ..
T. Masquie, Sheetland, Termonfelkin, ..	Do., ..	Heavy clay loam, ..	Shamrock, ..
M. Butterley, Clonmore, Dunleer,	Do., ..	Heavy loam, ..	Beauty of Bute, ..
M. Noone, Belgarriff, Foxford,	Mayo, ..	Light loam, ..	Old Champion, ..
P. J. Brennan, Walshtown, Kiltimagh, ..	Do., ..	Rich loam, ..	Do., ..
T. Jordan, Claremont, Claremorris,	Do., ..	Clay loam, ..	Do., ..
T. Counaughton, Barnycarroll, Claremorris, ..	Do., ..	Strong clay, ..	Do., ..
S. Lattimer, Kilahan, Monaghan,	Monaghan, ..	Light loam, ..	Up-to-date, ..
R. Duffy, Drumbawn, Carrickmacross, ..	Do., ..	Loam, ..	Old Champion, ..
W. Rafter, Ballyusk, Ballyfin,	Queen's Co., ..	Heavy loam, ..	Champion, ..
R. Oaxton, Dysarture, Stradbally,	Do., ..	Light loam over limestone, ..	Do., ..
M. Rogan, Clonard, Castlereagh,	Rosecommon, ..	Stiff clay, ..	Old Champion, ..
M. Mulleague, Clonbard,	Do., ..	Medium, ..	Do., ..
J. Naughton, Taughmaconnell, Ballinasloe, ..	Do., ..	Light sandy, ..	Do., ..
J. Egan, Castleplunket, Castlereagh, ..	Do., ..	Stiff clay, ..	Do., ..
P. C. Fogarty, Moyne, Templemore,	Tipperary, ..	Medium loam, ..	Northern Star, ..
J. Meagher, Ballyphilip, Templemore, ..	Do., ..	Loam, ..	Do., ..
M. Guiry, Colman, Lisronagh,	Do., ..	Stiff clay, ..	Old Champion, ..
P. M. Coffey, Ballynagroe, Emly,	Do., ..	Loam, ..	Do., ..
M. Cullen, Mucklagh, Enahely,	Do., ..	Loam, ..	Do., ..
E. Condon, Currinstown, Arlow,	Wicklow, ..	Light clay, ..	Do., ..
E. Sheshan, Gardenmorris, Kill,	Do., ..	Medium clay, ..	Gartons, ..
W. O'Donnell, Ballyraghty, Tralee,	Waterford, ..	Medium loam, ..	Old Champion, ..
J. B. Rice, Abbeydorrey, Tralee,	Kerry, ..	Calcareous loam, ..	Beauty of Bute, ..
Do.,	Do., ..	Peaty, ..	Old Champion, ..

Average yield per statute acre,

Increase due to Manures,

Value of Increase : Saleable Potatoes, 2s. per cwt. ; Small, 1s. per cwt

Cost of Manures,

Estimated profit per statute acre,

MANURIAL TEST.

STATUTE ACRE FROM EACH CENTRE.

PLOT 1.			PLOT 2.			PLOT 3.			PLOT 4.		
No Manure.			20 tons Farmyard Manure.			15 tons Farmyard Manure.			15 tons Farmyard Manure. 1 cwt. Sulphate of Ammonia.		
Saleable.	Small.	Total.	Saleable.	Small.	Total.	Saleable.	Small.	Total.	Saleable.	Small.	Total.
tons. cwt.	cwt.	tons. cwt.	tons. cwt.	cwt.	tons. cwt.	tons. cwt.	cwt.	tons. cwt.	tons. cwt.	cwt.	tons. cwt.
1 0	26	2 12	3 4	22	4 6	3 2	21	4 3	3 6	29	4 15
3 10	10	4 0	8 15	32	10 7	7 3	16	7 19	7 3	16	7 19
3 1	8	3 9	10 2	15	10 17	9 18	16	10 14	9 19	17	10 16
5 9	11	6 0	11 17	16	12 13	11 8	16	12 4	10 12	15	11 7
1 8	12	2 0	4 18	47	7 5	4 9	44	6 13	6 7	40	8 7
1 18	47	4 5	8 9	77	12 6	5 16	75	9 11	7 8	75	11 3
3 3	28	4 11	10 14	30	12 4	9 3	19	10 2	11 8	31	12 19
2 13	17	3 10	7 3	38	9 1	5 8	50	7 18	6 1	35	7 16
5 1	13	5 14	9 11	44	11 15	9 1	33	10 14	10 6	56	13 2
3 14	34	5 8	10 11	46	12 17	9 14	46	12 0	8 6	43	10 9
2 11	11	3 2	6 0	28	7 8	5 14	11	6 5	5 14	17	6 11
2 17	11	3 8	8 11	40	10 11	7 14	17	8 11	6 11	34	8 5
2 17	6	3 3	7 9	11	8 0	4 17	11	5 8	7 5	28	8 13
2 5	6	2 11	8 11	24	9 15	6 6	11	6 17	9 5	34	10 19
3 12	21	4 13	5 8	27	6 15	5 5	31	6 16	5 9	34	7 3
3 0	20	4 0	7 0	14	7 14	7 17	20	8 16	6 14	27	8 1
7 7	45	9 12	7 2	34	8 17	6 8	34	8 2	5 16	40	7 16
42	2	2 2	2 8	28	3 16	2 15	28	4 3	2 13	35	4 8
0 9	14	1 3	4 18	28	6 6	6 5	21	7 6	6 13	16	7 9
1 15	5	2 0	5 0	35	6 15	4 2	25	5 7	5 4	43	7 7
1 7	8	1 15	5 16	25	7 1	5 5	23	6 8	5 17	36	7 13
2 16	15	3 11	8 12	34	10 6	7 0	13	7 13	8 5	27	9 12
2 16	21	3 17	7 17	34	9 11	9 11	22	10 13	7 2	37	8 19
1 1	33	2 14	5 14	41	7 15	5 2	24	6 6	5 17	48	8 5
3 0	12	3 12	5 13	19	6 12	4 18	16	5 14	4 18	22	6 0
1 12	7	1 19	7 19	32	9 11	6 6	36	8 2	7 9	24	8 13
1 10	13	2 3	3 6	24	4 10	2 8	20	3 8	3 10	30	5 0
1 8	51	3 19	9 10	69	12 19	5 9	57	8 6	4 17	103	10 0
1 5	25	2 10	11 3	27	12 10	7 13	20	8 13	7 7	15	8 2
1 14	33	3 7	2 7	54	5 1	2 14	60	5 14	4 13	67	8 0
3 5	21	4 6	6 14	22	7 16	4 18	21	5 19	7 3	25	8 8
2 10	13	3 3	4 8	26	5 14	3 18	20	4 18	5 0	26	6 6
2 16	56	5 12	8 19	33	10 12	6 19	31	8 10	8 7	34	10 1
1 2	20	2 2	4 17	7	5 4	4 8	8	4 16	5 10	9	5 19
2 0	10	2 10	6 7	7	6 14	7 10	8	7 18	9 11	7	9 18
3 0	10	3 10	12 4	24	13 8	12 16	16	13 12	12 13	22	13 15
1 0	16	1 16	5 1	12	5 13	5 1	12	5 13	5 8	11	5 19
2 0	42	4 2	5 4	67	8 11	4 1	62	7 3	5 9	55	7 15
6 18	44	9 2	8 16	37	10 13	7 17	37	9 14	9 9	66	12 5
2 14	23	3 17	5 8	32	7 0	4 17	32	6 9	5 8	54	8 2
3 6	18	4 4	5 15	48	8 3	5 10	48	7 18	6 4	62	9 6
3 3	20	4 3	9 6	38	11 4	8 18	22	10 0	10 1	27	11 8
3 1	24	4 5	6 6	40	8 6	6 6	26	7 12	6 7	51	10 18
3 4	27	4 11	5 4	32	6 16	5 13	37	7 10	6 14	37	8 11
2	40	2 0	6 5	38	8 3	6 18	31	8 9	7 6	23	8 9
2 13	24	3 17	5 18	35	7 13	5 1	37	6 18	6 9	39	8 8
1 19	31	3 10	7 1	98	11 19	8 5	90	12 15	6 11	96	11 7
1 2	35	2 17	5 7	20	6 7	4 13	25	5 18	5 0	23	6 3
3 0	45	5 5	7 9	31	9 0	6 5	23	7 8	6 18	23	8 1
1 2	5	1 7	4 16	18	5 14	5 1	10	5 11	5 7	13	6 0
2 10	5	2 15	7 4	20	8 4	6 12	13	7 5	8 5	15	9 0
0 18	16	1 14	4 13	43	6 16	4 1	37	5 18	4 8	36	6 4
3 15	22	4 17	5 4	49	7 13	4 18	28	6 6	4 19	38	6 17
1 10	30	3 0	3 10	30	5 0	3 0	20	4 0	5 1	35	6 16
3 6	28	4 14	7 1	28	8 9	6 12	9	7 1	6 2	18	7 0
1 10	20	2 10	7 14	67	10 11	7 7	65	10 12	10 4	51	11 15
3 6	27	4 13	10 8	40	12 8	6 17	27	8 4	9 8	47	11 15
3 7	15	4 2	7 5	15	8 0	5 10	31	7 1	7 1	31	8 12
2 9	23	3 12	6 18	33	8 11	6 4	29	7 13	6 18	36	8 14
—	—	—	4 9	4 19	4 19	3 15	6	4 1	4 9	13	5 2
—	—	—	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
—	—	—	4 0 0	4 0 0	4 0 0	3 0 0	3 0 0	3 0 0	3 0 0	3 0 0	3 0 0
—	—	—	4 8 0	4 8 0	4 8 0	4 16 0	4 16 0	4 16 0	4 16 0	4 16 0	4 16 0

[continued on pp. 300-301]

POTATO EXPERIMENTS

TABLE I.—SHOWING THE RETURN:

Name and Address of Farmer.	County.	Character of Soil.	Variety of Po
J. Gage, Loughill, Cloughmills,	Antrim, ..	Medium loam, ..	Champion, ..
T. Linton, Killycowan, Clarryford,	Do., ..	Loam, ..	Up-to-date, ..
R. McKiney, Deffrick, Dervock,	Do., ..	Medium loam, ..	Beauty of But
— Coulter, Cladymore,	Armagh, ..	Loam (slightly gravelly), ..	Up-to-date, ..
H. O'Hare, Mavemacullen,	Do., ..	Medium loam, ..	Black Skerry, ..
J. Joyce, Carrigleade, Graigue-na-Managh, ..	Carlow, ..	Do., ..	Old Champion, ..
J. Webster, Ballykennan, Myshall,	Do., ..	Do., ..	Up-to-date, ..
C. Lenihane, Dooneens, Millstreet,	Cork, ..	Strong loam, ..	Old Champion, ..
M. Morton, Kilberebert, Freemount, Charleville, ..	Do., ..	Clay loam, ..	Up-to-date, ..
J. Murphy, Killuna, Killavallen,	Do., ..	Light loam, ..	Old Champion, ..
T. O'Sullivan, Cloughduv, Crookstown,	Cork, ..	Medium loam, ..	Champion, ..
Do., ..	Do., ..	Do., ..	Up-to-date, ..
P. O'Connell, Kilmoney, Oveus,	Do., ..	Do., ..	Duchess of Corri
Do., ..	Do., ..	Do., ..	Champion, ..
C. Dodd, Castlemote, Cloghran,	Dublin, ..	Do., ..	Bountiful, ..
J. Seagrave, Coolmine, Mulhuddert,	Do., ..	Light loam, ..	Up-to-date, ..
J. J. Lawlor, Irishtown House, Clondalkin, ..	Do., ..	Strong loam, ..	Do., ..
M. Byrne, Rockville House, Kilterman,	Do., ..	Loam, ..	Scottish Trium
T. Crawford, Knockroe, Irvinestown,	Fermanagh, ..	Medium loam, ..	Old Champion, ..
M. Graham, Drummack, Lisnaskea,	Do., ..	Strong loam, ..	Up-to-date, ..
M. Hallinan, Craughwell,	Galway, ..	Clay loam, ..	Champion, ..
P. Finerty, New Inn, Woodlawn,	Do., ..	Gravelly loam, ..	Do., ..
The Monastery, Brooklodge, Ballygummin, ..	Do., ..	Moory loam, ..	Do., ..
E. P. O'Brien, Leitrim House, Edeuderry, ..	King's, ..	Sandy loam, ..	Do., ..
W. Kinsella, Cloneygown, Portlaurington, ..	Do., ..	Stiff clay, ..	Beauty of But
B. Winters, Drumcong, Kiltubrid,	Leitrim, ..	Sandy loam, ..	Champion, ..
P. Wynn, Drumsharkin, Carrick-on-Shannon, ..	Do., ..	Peaty loam, ..	Do., ..
J. McGarry, Corduff, Bromod,	Do., ..	Clayey loam, ..	Champion (Se
— Bannantyne, Fanningstown Castle, Patrick's-well, ..	Limerick, ..	Limestone loam, ..	Beauty of But
William McCollum, Drumcroon, Coleraigne, ..	Londonderry, ..	Medium loam, ..	Up-to-date, ..
H. Brewster, Myroe, Linavady,	Do., ..	Clay loam, ..	Do., ..
E. McGerr, Esker, Longford,	Longford, ..	Clay, ..	Champion, ..
P. Brady, Galsha, Aghnacliche,	Do., ..	Gravelly loam, ..	Do., ..
A. Jeffers, Drumleek, Castlebellingham,	Louth, ..	Light loam, ..	British Queen, ..
D. J. Rath, Clogher Head, Drogheda,	Do., ..	Do., ..	Up-to-date, ..
J. Woods, Piedmont, Dundalk,	Do., ..	Do., ..	Do., ..
T. Maguire, Sheetland, Termonfelkin,	Do., ..	Heavy clay loam, ..	Shamrock, ..
M. Butterley, Clonmore, Dunleer,	Do., ..	Heavy loam, ..	Beauty of But
M. Noone, Belgarriff, Foxford,	Mayo, ..	Light loam, ..	Old Champion, ..
P. J. Brennan, Walshtown, Kiltinagh,	Do., ..	Rich loam, ..	Do., ..
T. Jordan, Claremont, Claremorris,	Do., ..	Clay loam, ..	Do., ..
T. Connaughton, Barnycarroll, Claremorris, ..	Do., ..	Strong clay, ..	Do., ..
S. Lattimer, Kilachan, Monaghan,	Monaghan, ..	Light loam, ..	Up-to-date, ..
R. Duffy, Drumbawn, Carrickmacross,	Do., ..	Loam, ..	Old Champion, ..
W. Rafter, Ballyusk, Ballyfin,	Queen's Co., ..	Heavy oam, ..	Champion, ..
R. Oaxton, Dysarture, Stradbally,	Do., ..	Light loam over limestone, ..	Do., ..
M. Rogan, Cloonard, Castlereagh,	Roscommon, ..	Stiff clay, ..	Old Champion, ..
M. Mcleague, Cloonbard,	Do., ..	Medium, ..	Do., ..
J. Naughton, Taughmacconnell, Ballinasloe, ..	Do., ..	Light sandy, ..	Do., ..
J. Egan, Castleplunket, Castlereagh,	Do., ..	Stiff clay, ..	Do., ..
P. C. Fogarty, Moyne, Templemore,	Tipperary, ..	Medium loam, ..	Northern Star, ..
J. Meagher, Ballyphilip, Templemore,	Do., ..	Loam, ..	Do., ..
M. Guiry, Coleman, Lisronagh,	Do., ..	Stiff clay, ..	Old Champion, ..
P. M. Coffey, Ballinagroe, Emly,	Do., ..	Loam, ..	Do., ..
M. Cullen, Mucklagh, Tinahely,	Wicklow, ..	Light clay, ..	Do., ..
E. Condren, Currenstown, Arklow,	Do., ..	Medium clay, ..	Gartons, ..
E. Sheehan, Gardenmorris, Kill,	Waterford, ..	Medium loam, ..	Old Champion, ..
W. O'Donnell, Ballyraghity, Tralee,	Kerry, ..	Calcareous loam, ..	Beauty of But
J. B. Rice, Abbeydorney, Tralee,	Do., ..	Peaty, ..	Old Champion, ..

Average yield per statute acre,
Increase due to Manures,

Value of Increase : Saleable Potatoes, 2s. per cwt. ; Small, 1s. pe
Cost of Manures,
Estimated profit per statute acre,

IANURIAL TEST—continued.

STATUTE ACRE FROM EACH CENTRE.

PLOT 5.			PLOT 6.			PLOT 7.		
15 tons Farmyard Manure. 1 cwt. Sulphate of Ammonia. 4 cwt. Superphosphate.			15 tons Farmyard Manure. 1 cwt. Sulphate of Ammonia. 4 cwt. Superphosphate. 1 cwt. Muriate of Potash (high grade).			15 tons Farmyard Manure. 1 cwt. Sulphate of Ammonia. 4 cwt. Superphosphate. 1 cwt. Sulphate of Potash (high grade).		
Saleable.	Small.	Total.	Saleable.	Small.	Total.	Saleable.	Small.	Total.
tons. cwt.	cwt.	tons. cwt.	tons. cwt.	cwt.	tons. cwt.	tons. cwt.	cwt.	tons. cwt.
7 12	45	9 17	8 13	33	10 6	9 1	37	10 18
9 3	39	11 2	9 3	56	11 19	9 3	39	11 2
11 6	15	12 1	11 8	15	12 3	11 8	22	12 10
11 7	14	12 1	12 4	21	13 5	13 16	13	14 9
6 12	55	9 7	7 3	50	9 18	8 16	42	10 18
8 3	79	12 2	10 5	81	14 6	8 7	88	12 15
11 16	27	13 3	13 0	27	14 7	12 15	37	14 12
8 11	42	10 13	10 1	43	12 4	10 14	42	12 16
11 1	57	13 18	12 4	40	14 4	11 11	37	13 8
9 14	33	11 7	11 0	60	14 0	10 7	60	13 7
5 17	17	6 14	6 0	29	7 9	5 6	11	5 17
8 11	17	9 8	6 9	34	8 3	6 16	11	7 7
6 9	20	7 18	7 15	29	9 4	6 4	17	7 1
7 12	11	8 3	9 13	24	10 17	7 17	25	9 2
5 18	31	7 9	5 15	31	7 6	6 0	28	7 8
9 4	23	10 7	9 1	28	10 9	10 12	29	11 11
5 16	42	7 18	5 18	42	8 0	6 12	44	8 16
8 17	51	11 8	8 0	61	11 1	9 1	60	12 1
4 0	30	5 10	3 13	23	4 16	4 5	14	4 19
7 2	16	7 18	8 18	17	9 15	6 8	10	7 7
5 14	38	7 12	6 2	40	8 2	6 5	42	8 7
6 15	25	8 0	7 3	34	8 17	6 17	38	8 15
8 10	34	10 4	9 16	35	11 17	9 9	35	11 4
7 17	42	9 19	8 3	63	11 6	10 14	61	13 15
6 13	54	9 7	7 18	53	10 11	5 7	54	8 1
5 3	20	6 3	5 0	22	6 2	5 9	18	6 7
6 6	27	7 13	8 17	30	10 7	7 19	23	9 2
4 0	27	5 7	4 10	20	5 10	3 16	25	5 1
8 18	43	11 1	6 6	69	9 15	6 9	48	8 17
8 17	43	11 0	11 1	24	12 5	11 2	36	12 18
5 11	68	8 19	5 12	78	9 10	4 13	72	8 5
8 2	25	9 7	8 4	29	9 13	8 12	32	10 4
5 13	26	6 19	6 12	26	7 18	7 10	32	9 2
10 11	37	12 8	10 19	35	12 14	11 12	33	13 5
5 15	10	6 5	5 13	11	6 4	5 17	12	6 9
10 12	7	10 19	10 11	6	10 17	8 12	7	8 19
13 8	25	14 13	14 5	22	15 7	13 10	25	14 15
6 1	12	6 13	6 10	13	7 3	5 17	12	6 9
4 18	64	8 2	4 5	80	8 5	5 8	87	9 15
10 7	44	12 11	10 14	50	13 4	10 14	63	13 17
7 0	43	9 3	7 0	48	9 8	7 11	43	9 14
6 14	60	9 14	6 19	64	10 3	7 2	60	10 2
12 16	26	14 2	13 12	32	15 4	13 18	30	15 8
6 6	16	7 2	9 18	20	10 18	10 14	24	11 18
7 7	38	9 5	7 15	35	9 10	7 10	32	9 2
8 7	26	9 13	8 17	25	10 2	8 3	24	9 7
6 18	47	9 5	8 5	59	11 4	8 1	55	10 16
6 17	102	11 10	8 13	99	13 12	8 9	103	13 12
6 1	19	7 0	7 12	15	8 7	7 12	16	8 8
7 17	27	9 4	8 12	28	10 0	8 16	26	10 2
5 18	16	6 14	6 5	12	6 17	6 13	15	7 8
8 8	18	9 6	10 0	7	10 7	9 8	15	10 3
4 17	44	7 1	4 19	49	7 8	5 2	47	7 9
5 19	37	7 16	6 13	45	8 18	6 1	51	8 12
5 11	10	6 1	6 11	35	8 6	6 1	30	7 11
7 10	56	10 6	8 0	56	10 16	9 8	28	10 16
9 7	48	11 15	9 1	62	12 3	10 10	52	13 2
8 18	51	11 9	10 18	39	12 17	10 16	39	12 15
7 5	27	8 12	7 9	35	9 4	7 13	55	10 8
7 14	35	9 9	8 7	38	10 5	8 8	37	10 3
5 5	12	5 17	5 18	15	6 13	5 17	14	6 11
	£ s. d.			£ s. d.			£ s. d.	
	11 4 7	0 0 0		12 11 0			12 8 0	
	6 15 0			4 17 0			4 18 0	
				7 14 0			7 10 0	

POTATO EXPERIMENT:-

TABLE II.—SHOWING THE RETURNS PER

Name and Address of Farmer.	County.	Character of Soil.	MAIN CROP.					
			Langworthy.			Black Skerries.		
			Salable.	Small.	Total.	Salable.	Small.	Total.
			tons. cwt.	cwt.	tons. cwt.	tons. cwt.	cwt.	tons. cwt.
D. Patterson, Ballywatt, Dervock.	Antrim, ..	Medium loam, ..	8 13	21	9 14	10 6	12	10 18
A. Price, Craigalappin, Straid, Bushmills.	Do., ..	Clay loam, cold clay subsoil.	4 6	41	6 7	4 15	33	6 8
H. Stewart, Lisdrumchor, ..	Armagh, ..	Medium loam, ..	—	—	—	6 15	21	7 16
H. P. Earl, Rathvilly, ..	Carlow, ..	Limestone loam, ..	7 0	10	7 10	7 16	20	8 16
J. Joyce, Carrigleade, Graigue-namanagh.	Do., ..	Loam, ..	4 15	41	6 16	6 6	47	8 11
C. Dodd, Castlemeade, Cloghran.	Dublin, ..	Loam, ..	6 12	18	7 10	—	—	—
J. J. Lawlor, Irishtown, Clondalkin.	Do., ..	Do., ..	5 14	46	8 0	—	—	—
W. Carr, Scaldwood, Blanchards-town.	Do., ..	Do., ..	7 17	17	8 14	—	—	—
H. Bolton, Ballygreem, Ballymacuad.	Galway, ..	Do., ..	3 8	39	5 7	3 14	25	4 16
T. Lawlor, Sandmount, Loughrea.	Do., ..	Clay loam, ..	3 16	20	4 16	3 10	35	5 5
J. Woulfe, Ballyouneen, Liselton.	Kerry, ..	Loam, ..	—	—	—	5 17	43	8 6
D. Barton, Cloughenbrien, Tralee.	Do., ..	Calcareous clay, ..	—	—	—	3 13	21	4 14
J. O'Connor Castlegregory, ..	Kerry, ..	Sandy, ..	—	—	—	4 17	48	7 5
M. Quinn, Derryerogue, Donadea.	Kildare, ..	Boggy, ..	—	—	—	—	—	—
J. Kelly, Wallerstown, Hurney.	Do., ..	Loam, ..	—	—	—	—	—	—
J. C. Darby, D.L., Leap Castle, Roscrea.	King's Co.,	Retentive loam, ..	—	—	—	3 16	52	6 8
E. P. O'Brien, J.P., Leitrim House, Edenderry.	Do., ..	Sandy loam, ..	—	—	—	8 5	43	10 8
M. Martin, Ballinamore, ..	Leitrim, ..	Heavy peat, ..	7 4	22	8 6	6 14	14	7 8
E. Costello, Dromore, Carrick-on-Shannon.	Do., ..	Deep loam, ..	5 5	15	6 0	9 0	12	9 12
J. Henry, Killarga, ..	Do., ..	Peaty loam, ..	6 5	8	6 13	4 19	11	5 16
W. Shannon, Castiquin, Derry.	Londonderry	Medium clay loam, ..	2 6	46	4 12	—	—	—
W. McCollum, Drumcroon, Coleraine.	Do., ..	Heavy clay loam, ..	2 2	54	4 16	—	—	—
J. McCarthy, Farras, Longford, ..	Longford, ..	Gravelly loam, ..	10 4	33	11 17	10 17	35	12 12
Wm. Thompson, Newtownforbes.	Do., ..	Clay loam, ..	4 13	22	5 15	4 8	15	5 3
P. J. Brennan, Walshtown, Kiltimagh.	Mayo, ..	Light loam, ..	5 15	30	7 5	5 15	60	8 15
W. Deegan, Kylebeg, Stradbally.	Queen's Co.,	Light loam, ..	2 6	24	3 10	1 13	29	3 2
M. P. Mullally, Ballycullen, ..	Tipperary, ..	—	—	—	—	6 16	28	8 4
N. Kickham, Mullinahone, ..	Do., ..	Clay, ..	—	—	—	6 15	18	7 13
C. Fitzgerald, Bagin, Athlone.	Westmeath,	Light loam, ..	7 0	57	9 17	6 16	68	10 4
M. Cullen, Mucklagh, Tinahealy.	Wicklow, ..	Light clay, ..	5 1	35	6 16	3 10	15	4 5
M. Fleming, Ballymultagh, Shillelagh.	Do., ..	Do., ..	5 1	43	7 4	2 11	34	4 5
Average yield per statute acre in 1907,			5 10	31	7 1	5 16	31	7 1
Do.	Do.	1906,	5 9	17	6 6	5 8	39	8 18
Do.	Do.	1905,	10 14	18	11 12	7 0	29	8 8
Do.	Do.	1904,	—	—	—	5 17	20	6 17
Do.	Do.	1903,	—	—	—	7 11	19	8 10
Do.	Do.	1902,	—	—	—	6 6	30	7 16
Do.	Do.	1901,	—	—	—	6 12	27	9 18

ARIETY TEST.

TATUTE ACRE FROM EACH CENTRE.

MAINCROP.

Champion IL.			Old Champion.			Beauty of Bute.			Up-to-Date.		
Saleable.	Small.	Total.	Saleable.	Small.	Total.	Saleable.	Small.	Total.	Saleable.	Small.	Total.
tons. cwt.	cwt.	tons. cwt.	tons. cwt.	cwt.	tons. cwt.	tons. cwt.	cwt.	tons. cwt.	tons. cwt.	cwt.	tons. cwt.
8 9	12	9 1	11 10	25	12 15	7 16	45	10 1	10 14	21	11 15
3 12	30	5 2	3 14	66		7 0	48	6 10	4 2	41	6 3
-	-	-	-	-	-	-	-	-	11 0	34	12 14
9 18	10	10 8	7 19	25	9 4	7 7	27	8 14	9 6	22	10 8
7 10	58	10 8	6 0	54	8 14	7 0	51	9 11	12 17	47	15 4
-	-	-	-	-	-	-	-	-	7 6	11	7 17
-	-	-	-	-	-	-	-	-	7 12	57	10 9
-	-	-	-	-	-	-	-	-	8 18	18	9 16
5 0	8	5 8	3 12	48	6 0	3 10	5	36 3	6 2	43	8 5
7 16	33	9 9	5 10	35	7 5	5 0	28	6 8	4 16	30	6 6
-	-	-	11 19	67	15 6	7 3	67	10 10	9 7	45	11 12
-	-	-	4 19	29	6 8	7 3	40	9 3	8 15	21	9 10
-	-	-	6 6	87	10 13	4 0	88	8 8	7 4	73	10 17
-	-	-	8 0	22	9 2	-	-	-	7 7	28	8 15
-	-	-	8 8	13	9 1	6 6	8	6 14	7 13	12	8 5
-	-	-	4 17	114	10 11	6 19	71	10 10	10 16	49	13 5
-	-	-	11 2	82	15 4	11 0	40	13 9	12 12	35	14 7
-	-	-	8 0	30	9 10	6 18	26	8 4	6 8	20	7 8
10 10	21	11 11	8 6	15	9 1	6 0	14	6 14	6 15	18	7 13
-	-	-	3 11	9	4 0	3 4	11	3 15	4 16	18	5 14
3 17	43	6 0	2 14	92	7 6	3 9	74	7 3	4 4	57	7 1
2 14	84	6 18	0 18	78	4 16	1 10	57	4 7	2 2	30	3 12
9 0	41	11 1	10 3	54	12 17	8 10	45	10 15	9 1	71	12 12
5 3	20	6 3	4 10	22	5 12	4 15	16	5 11	5 0	20	6 0
6 5	30	7 15	6 15	45	9 0	6 13	32	8 5	7 10	33	9 3
-	-	-	3 13	33	5 6	2 8	32	4 0	3 9	27	4 16
-	-	-	8 8	33	10 1	9 2	21	10 3	9 16	27	11 3
-	-	-	7 3	24	8 7	7 19	28	9 7	9 15	19	10 14
4 19	90	9 9	6 12	100	11 12	5 7	123	11 10	8 11	71	12 2
6 1	15	6 16	6 1	45	8 6	6 1	50	8 11	6 11	20	7 11
7 15	11	8 6	5 8	29	6 17	5 11	51	8 2	5 11	22	6 13
6 11	34	8 5	6 10	47	8 17	5 19	44	8 3	7 12	33	9 5
6 16	18	7 14	5 18	38	7 16	6 19	30	8 9	7 12	26	8 18
9 9	21	10 10	8 6	46	10 12	9 11	35	11 6	11 18	35	13 13
7 10	25	8 15	7 2	32	8 14	7 7	34	9 1	8 12	26	9 18
7 16	21	8 17	7 10	30	9 0	9 4	31	10 15	10 10	19	11 9
10	21	8 11	6 8	45	8 13	8 17	32	10 9	8 14	24	9 18
4	23	10 7	10 15	43	12 18	10 2	31	11 13	13 15	23	14 18

[continued on pp. 301-305.]

POTATO EXPERIMENT:—

TABLE II.—SHOWING THE RETURNS PER

Name and Address of Farmer.	County.	Character of Soil.	MAINCROP.					
			Evergood.			Factor.		
			Saleable.	Small.	Total.	Saleable.	Small.	Total.
			tons. cwt.	cwt.	tons. cwt.	tons. cwt.	cwt.	tons. cwt.
Akerson, Ballywatt, Dervock,	Antrim, ..	Medium loam, ..	11 10	45	14 4	—	—	—
ice, Craigalappin, Straid,	Do., ..	Clay loam, cold clay	4 15	49	7 4	—	—	—
ushmills.		subsoil.						
Swart, Lisdrumchor, ..	Armagh, ..	Medium loam, ..	8 7	40	10 7	9 18	42	12 0
Earl, Rathvilly, ..	Carlow, ..	Limestone loam,	8 0	17	8 17	8 8	25	9 13
ree, Carrigleade, Graigue-	Do., ..	Loam, ..	8 1	43	10 4	—	—	—
umanagh.								
Id, Castlemoate, Cloghran,	Dublin, ..	Loam, ..	—	—	—	5 14	23	6 17
Lawlor, Irishtown, Clon-	Do., ..	Do., ..	—	—	—	7 2	50	9 12
skin.								
rr, Scaldwood, Blanchards-	Do., ..	Do., ..	—	—	—	7 15	24	8 19
own.								
olton, Ballygreem, Bally-	Galway, ..	Do., ..	4 5	39	6 4	—	—	—
accard.								
vlor, Sandmount, Loughrea,	Do., ..	Clay loam, ..	5 2	25	6 7	—	—	—
ulfe, Ballyouneen, Liselton,	Kerry, ..	Loam, ..	—	—	—	—	—	—
rtton, Cloughenbrien, Trillick,	Do., ..	Calcareous clay,	—	—	—	—	—	—
Donnor Castle, Gregory, ..	Kerry, ..	Sandy, ..	—	—	—	—	—	—
inn, Derryerogue, Donadea,	Kildare, ..	Boggy, ..	—	—	—	6 17	28	8 5
ly, Wallenstown, Hurney,	Do., ..	Loam, ..	—	—	—	—	—	—
Darby, D.L., Leap Castle,	King's Co.,	Retentive loam,	—	—	—	—	—	—
ocreea.								
O'Brien, J.P., Leitrim House,	Do., ..	Sandy loam, ..	—	—	—	—	—	—
denderry.								
rtin, Ballinamore, ..	Leitrim, ..	Heavy peat, ..	6 11	18	7 9	—	—	—
tello, Dromore, Carrick-on-	Do., ..	Deep loam, ..	7 15	14	8 9	9 0	16	9 16
nannon.								
rry, Killarga, ..	Do., ..	Peaty loam, ..	—	—	—	8 11	16	9 7
annon, Castiquin, Derry, ..	Londonderry,	Medium clay loam,	4 1	60	7 1	—	—	—
Collum, Drumcroom, Colo-	Do., ..	Heavy clay loam,	1 10	42	3 12	—	—	—
sine.								
Carthy, Farra, Longford, ..	Loughford,	Gravelly loam, ..	8 14	52	11 0	—	—	—
Thompson, Newtownforbes,	Do., ..	Clay loam, ..	5 8	16	6 4	—	—	—
Brennan, Walshtown, Kil-	Mayo, ..	Light loam, ..	6 15	37	8 12	—	—	—
magh.								
egan, Kylebeg, Stradbally,	Queen's Co.,	Light loam, ..	1 4	20	2 4	—	—	—
Mullally, Ballycullen, ..	Tipperary,	—	8 7	19	9 6	0 3	24	10 7
ekham, Mullinahone, ..	Do., ..	Clay, ..	6 2	36	7 18	10 12	15	11 7
zgerald, Baginbun, Athlone,	Westmeath,	Light loam, ..	7 17	94	12 11	—	—	—
len, Mucklagh, Tinahely,	Wicklow,	Light clay, ..	5 6	25	6 11	—	—	—
eming, Ballymultagh, Shil-	Do., ..	Do., ..	8 10	33	10 3	—	—	—
lagh.								
Average yield per statute acre in 1907,			6 8	36	8 4	8 6	26	9 12
Do.	Do.	1906,	6 1	26	7 7	7 16	23	8 19
Do.	Do.	1905,	10 1	33	11 14	—	—	—
Do.	Do.	1904,	7 10	25	8 15	—	—	—
Do.	Do.	1903,	9 6	32	10 18	—	—	—
Do.	Do.	1902,	—	—	—	—	—	—
Do.	Do.	1901,	—	—	—	—	—	—

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IV.—MANGELS.

A.—MANURIAL TEST.

This experiment, designed with the object of discovering a simple and profitable method of manuring the mangel crop, was similar to those of preceding years except for the following slight modifications:— (i.) The dressing of dung was in each instance increased from 15 tons to 20 tons per statute acre. (ii.) The application of kainit on Plot 5 was increased from 2 cwt. to 4 cwt. per acre. (iii.) An extra Plot, No. 7, was introduced for the purpose of testing the effect of applying nitrate of soda at two successive top dressings as compared with the results obtained from the application of a like quantity of sulphate of ammonia at the time of sowing. The experiments were carried out on thirty-five farms in Counties Carlow, Cork, Dublin, Fermanagh, Kerry, Kildare, Limerick, Louth, Queen's County, Tipperary, and Waterford. The complete results of the experiments are shown in Table I. (pp. 308–309.)

For convenience of reference the average results are reproduced in the following table:—

Plot.	Manures applied per statute acre.	Average yield per acre.	Increase due to Manures.	Value of Increase.	Cost of Manures.	Estimated Profit per acre.
		tons, cwt. 10 18	tons cwt.	£ s. d.	£ s. d.	£ s. d.
1	No Manure,	10 18				
2	20 tons Farmyard Manure,	25 15	14 17	7 8 6	4 0 0	3 8 6
3	20 tons Farmyard Manure, 4 cwt. Superphosphate,	26 17	15 19	7 19 6	4 12 0	3 7 6
4	20 tons Farmyard Manure, 4 cwt. Superphosphate, 2 cwt. Sulphate of Ammonia,	29 15	18 17	8 8 6	6 2 0	3 6 6
5	20 tons Farmyard Manure, 4 cwt. Superphosphate, 2 cwt. Sulphate of Ammonia, 4 cwt. Kainit,	32 15	21 17	10 18 6	6 13 0	4 5 6
6	20 tons Farmyard Manure, 4 cwt. Superphosphate, 2 cwt. Sulphate of Ammonia, 4 cwt. Salt,	34 5	23 7	11 13 6	6 8 0	5 5 6
7	20 tons Farmyard Manure, 4 cwt. Superphosphate, 4 cwt. Salt, 2 cwt. of Nitrate of Soda (applied in 2 dressings after thinning).	32 19	22 1	11 0 6	6 3 0	4 17 6

Plot 2 received an application of 20 tons of dung; each of Plots 3, 4, 5, 6, 7 was dressed with a different mixture of artificial manures in addition to this quantity of dung.

The effects of these different mixtures were as follows:—The addition of 4 cwt. superphosphate increased the crop, but not to such an extent as to leave any profit from its use; nor did the further addition of 2 cwt. sulphate of ammonia increase the crop sufficiently to pay for the extra cost of the manure; while the still further addition of 4 cwt. kainit made up for this deficiency and left a profit of 18s. per acre more than was obtained from Plot 3. Hence it will be seen that, although the application of a good dressing of farm-yard manure left a considerable profit, the addition of a complete mixture of artificial manures has increased that profit by 17s. per acre after paying for the cost of the manures.

On Plot 6, 4 cwt. salt was substituted for the 4 cwt. kainit applied on Plot 5, and at the majority of centres the salt gave the heavier crop.

On the average, the salt produced a yield of 1 ton 10 cwt. more than the kainit, and as the cost was only about half that of the kainit, a substantial profit of 20s. per acre is shown in favour of the salt.

A similar result has been obtained in previous years, and from the results of the experiments conducted during the last seven years it is shown that as a rule mangels respond better to a dressing in which salt is included than to one containing kainit.

The application on Plot 7 of two successive top dressings of 1 cwt. nitrate of soda resulted in an decreased profit of 8s. as compared with Plot 6.

The following table shows the average yields obtained in the experiments carried out in, 1901-1907, inclusive.

Plot	Manure.	Quantity applied per statute acre.	Average Yield in 1901.	Average yield in 1902.	Average yield in 1903.	Average yield in 1904.	Average yield in 1905.	Average yield in 1906.	Average yield in 1907.
1	No Manure,	—	tons cwt. 15 9	tons cwt. 7 1	tons cwt. 3 3	tons cwt. 8 8	tons cwt. 3 14	tons cwt. 9 7	tons cwt. 10 18
2	Farmyard Manure.	{ 15 tons, 1901-1905. 20 tons, 1906-7. .	26 12	18 0	16 5	22 3	16 13	24 19	25 15
3	Farmyard Manure and Superphosphate.	{ 15 tons, 1901-1905. 20 tons, 1906-7. . 4 cwt. Superphosphate.	27 13	19 7	17 13	25 3	19 8	27 2	26 17
4	Farmyard Manure, Superphosphate and Sulphate of Ammonia.	{ 15 tons, 1901-1905. 20 tons, 1906-7. . 4 cwt. Superphosphate. 2 cwt. Sulphate of Ammonia.	31 0	22 11	23 12	27 7	21 3	29 5	29 15
5	Farmyard Manure, Superphosphate, Sulphate of Ammonia, and Kainit.	{ 15 tons, 1901-1905. 20 tons, 1906-7. . 4 cwt. Superphosphate. 2 cwt. Sulphate of Ammonia. 2 cwt. Kainit, 1901-1905. 4 cwt. Kainit, 1906-7.	33 12	24 18	24 6	29 17	23 13	32 1	32 15
6	Farmyard Manure, Superphosphate, Sulphate of Ammonia, and Salt.	{ 15 tons, 1901-1905. 20 tons 1906-7. . 4 cwt. Superphosphate. 2 cwt. Sulphate of Ammonia. 4 cwt. Salt.	36 11	25 12	25 10	31 18	24 10	34 7	34 5
7	Farmyard Manure, Superphosphate, Salt and Nitrate of Soda.	{ 20 tons, 1901-1905. 4 cwt. Superphosphate. 4 cwt. Salt. 2 cwt. Nitrate of Soda.	—	—	—	—	—	34 14	32 19

* Applied in two top dressings after the mangels were thinned.

B.—VARIETY TEST.

This experiment, designed to test the cropping powers of different varieties of mangels, was carried out at eleven centres in the following Counties:—Antrim, Carlow, Clare, Cork, Louth, and Waterford. The returns of each variety at the individual centres, together with the average yield per statute acre in 1907, 1906, and 1905, are given in Table II.

MANGEL EXPERIMENT.—

TABLE I. SHOWING THE RETURNS PER

Name and Address of Farmer.	County.	Character of Soil.	Variety of Mangel.	Plot 1. No Manure.
				tons cwt.
H. McDonald, Grange, Tullow, .	Carlow, . .	Clay loam, . .	Yellow Globe, . .	17 3
J. Forde, Glashaboy, Dromahane,	Cork, E., . .	Peaty loam, . .	do., . .	3 7
J. Forde, Glashaboy, Dromahane,	" . . .	do., . .	do., . .	3 7
P. Guiney, Priory, Newmarket, .	" . . .	Medium loam, . .	do., . .	10 9
J. Moore, Walshtown, Ballincourig,	" . . .	Heavy loam, . .	do., . .	1 14
P. O'Callaghan, Ballysimon, Mallow	" . . .	Light loam, . .	do., . .	33 3
D. Ross, Tweedmount, Blarney, .	" . . .	Loam, . .	do., . .	8 14
Dr. P. Gould, Raleigh, Macroom,	Cork, W., . .	Medium loam, . .	do., . .	15 0
E. Gould, Dromonig, Macroom, .	" . . .	Light loam, . .	do., . .	10 6
T. O'Sullivan, Cloughdav, Crooks- town.	" . . .	Medium loam, . .	do., . .	6 17
J. R. Godrel, Newceston, Enniskean,	" . . .	do., . .	do., . .	5 3
T. Cerooran, Castleknock, . .	Dublin, . .	Loam, . .	Long Red and Yel- low Globe.	26 0
J. J. Lawlor, Irishtown House, Clondalkin.	" . . .	Strong loam, . .	Yellow Globe, . .	26 2
C. Dodd, Castlemonate, Cloghran, .	" . . .	do., . .	Long Red and Yel- low Globe.	29 9
R. Clarke, Cortrasna, Rosslea, .	Fermanagh, .	Light loam, . .	Windsor Prizetaker.	1 6
J. A. Beatty, Killykeeran, Brook- borough,	" . . .	Strong loam, . .	Yellow Globe, . .	7 11
E. M. Archdale, Riversdale, Bal- linalmullard.	" . . .	Peaty loam, . .	Long Red, . .	9 0
T. Fitzgerald, Aulard, Abbey- dorney,	Kerry, . .	Loam, . .	Yellow Globe, . .	—
P. Murray, Gilttown, Donadra, .	Kildare, . .	Clay, . .	Orange Globe, . .	9 0
P. Maher, Kildoon, Kildare, . .	" . . .	do., . .	Long Red, . .	16 0
— Bannantyne, Fanningtown Castle, Patrickswell.	Limerick, . .	Peaty, . .	Yellow Globe, . .	17 13
D. O'Brien, Cahirmoyle, Airdagh,	" . . .	Heavy loam, . .	Yellow Globe Prizewinner.	19 10
T. F. Filgate, Mullinstown, Ardee,	Louth, . .	Light loam, . .	Yellow Globe, . .	0 9
— Carroll, Kilcrouney, Knock- bridge.	" . . .	Loam, . .	do., . .	2 6
R. M'Dowell, Mulharden, Dundalk,	" . . .	do., . .	Prizewinner, . .	25 0
A. McKevitt, Kilkerley, Dundalk,	" . . .	do., . .	Yellow Globe, . .	15 0
T. Gowing, Kilminely, Mary- borough.	Queen's Co., .	Medium loam, . .	do., . .	4 10
T. P. Kennedy, Mantle Hill, Golden,	Tipperary, S.,	Clay, . .	do., . .	12 4
T. C. Fogarty, Moyne, Templemore,	Tipperary, N.,	Medium loam, . .	do., . .	7 2
J. Meagher, Ballyphilip, Temple- more.	" . . .	Loam, . .	do., . .	12 13
P. D'Arcy, Liskilawn, Borrisokane,	" . . .	Medium loam, . .	do., . .	7 17
R. Wolfe, Rookford, Nenagh, . .	" . . .	Loam, . .	do., . .	9 0

MANURIAL TEST.

STATUTE ACRE FROM EACH CENTRE.

Plot 2. 90 tons Farmyard Manure.	Plot 3. 20 tons Farm- yard Manure. 4 cwt. Super- phosphate.	Plot 4. 20 tons Farmyard Manure. 4 cwt. Super- phosphate. 2 cwt. Sulphate of Ammonia.	Plot 5. 20 tons Farmyard Manure. 4 cwt. Super- phosphate. 2 cwt. Sulphate of Ammonia. 4 cwt. Kainit.	Plot 6. 20 tons Farmyard Manure. 4 cwt. Super- phosphate. 2 cwt. Sulphate of Ammonia. 4 cwt. Salt.	Plot 7. 20 tons Farmyard Manure. 4 cwt. Super- phosphate. 4 cwt. Salt. 2 cwt. Nitrate of Soda (to be applied after thin- ning in two dressings).
tons cwt.	tons cwt.	tons cwt.	tons cwt.	tons cwt.	tons cwt.
19 11	22 1	22 7	24 10	29 8	26 11
18 4	16 17	23 10	29 15	26 14	27 1
25 8	19 17	26 16	26 2	32 12	30 8
26 15	26 15	27 14	33 15	35 17	33 17
9 18	18 18	29 0	28 2	37 6	27 0
40 17	43 11	38 8	51 18	49 0	48 17
22 9	22 2	24 7	26 10	30 3	27 4
26 0	26 6	26 17	35 3	32 17	28 0
31 14	32 6	38 0	39 3	41 14	40 6
32 6	34 0	40 11	44 0	42 6	13 0
23 3	31 3	31 8	37 3	33 6	32 6
36 15	33 2	36 15	—	40 13	40 13
27 4	27 8	27 17	29 3	31 2	—
36 6	35 15	37 6	42 19	40 15	—
13 18	14 7	17 10	22 11	19 2	21 1
18 6	15 3	18 13	21 5	21 3	23 17
16 10	16 5	19 1	20 5	20 15	19 0
29 10	34 1	33 6	36 15	40 1	44 17
17 15	16 0	16 6	18 0	23 10	—
42 15	42 0	42 0	43 10	45 10	—
36 7	35 10	37 17	37 10	41 5	40 0
24 0	25 15	30 10	34 5	32 5	31 5
17 11	17 6	20 0	19 12	23 0	20 9
15 12	15 6	17 2	19 14	23 9	16 10
36 2	37 13	43 0	44 7	45 18	45 11
26 12	28 10	30 0	30 3	31 12	31 11
26 0	27 0	29 10	32 15	31 15	28 2
28 2	30 0	31 17	32 13	39 7	35 8
22 10	23 5	24 15	27 0	26 12	28 15
31 17	32 0	39 5	43 10	40 6	44 12
11 5	16 18	22 10	27 0	23 13	24 15
26 5	27 15	31 10	30 15	37 10	36 15

MANGEL EXPERIMENT.—

TABLE I.—*continued*.—SHOWING THE RETURNS

Name and Address of Farmer.	County.	Character of Soil.	Variety of Mangel.	Plot 1. No Manure.
T. Flynn, Twomilebridge, Dunganarvan.	Waterford.	Clay loam.	Yellow Globe.	tons cwt. —
J. Nugent, Ballinaurra, Carrick-on-Suir.	"	Medium loam.	do.	13 0
E. Sheehan, Gardenmorris, Kill.	"	do.	do.	—
Average Yield per statute acre.				10 18
Increase due to Manures.				—
Value of the Increase : Mangels estimated at 10s. per ton.				—
Cost of Manures.				—
Estimated Profit per statute acre.				—

MANGEL EXPERIMENT.—

TABLE II.—SHOWING THE RETURNS PER

Name and Address of Farmer.	County.	Character of Soil.	Yellow Globe.	Prize-winner
			tons cwt.	tons cwt.
F. H. Dysart, Duncaney, Glarryford.	Antrim.	Medium loam.	21 8	25 2
H. Burgess, Ballycormack, Bagenalstown.	Carlow.	do.	39 4	37 12
A. O'Brien, Lickmann, Ennis.	Clare.	Light loam.	27 4	25 2
D. Ahern, Bridgefield, Ladysbridge.	Cork, E.	Gravelly loam.	45 6	44 14
C. O'Brien, Killickane, Mitchelstown.	"	Loam.	44 14	38 10
C. O'Callaghan, Scarragh, Lomardstown.	"	Light loam.	34 13	34 16
P. O'Callaghan, Ballysimon, Dromahane.	"	do.	47 6	34 16
Dr. P. Gould, Raleigh, Macroom.	Cork, W.	Medium loam.	32 11	34 0
N. B. King, Knockbridge, Dundalk.	Louth.	Light loam.	30 4	32 3
E. Sheehan, Gardenmorris, Kill.	Waterford.	Medium loam.	33 4	29 0
J. B. A. Bosanquet, Lahardap, Portlaw.	"	do.	28 2	30 1
Average Yield per statute acre in 1907.			34 19	33 5
" " " 1908.			37 1	37 12
" " " 1909.			23 8	26 2

MANURIAL TEST—*continued.*

PER STATUTE ACRE FROM EACH CENTRE.

Plot 2.	Plot 3.	Plot 4.	Plot 5.	Plot 6.	Plot 7.
20 tons Farmyard Manure.	20 tons Farmyard Manure. 4 cwt. Super-phosphate.	20 tons Farmyard Manure. 4 cwt. Super-phosphate. 2 cwt. Sulphate of Ammonia.	20 tons Farmyard Manure. 4 cwt. Super-phosphate. 2 cwt. Sulphate of Ammonia. 4 cwt. Kainit.	20 tons Farmyard Manure. 4 cwt. Super-phosphate. 2 cwt. Sulphate of Ammonia. 4 cwt. Salt.	20 tons Farmyard Manure. 4 cwt. Super-phosphate. 4 cwt. Salt. 2 cwt. Nitrate of Soda (to be applied after thinning in two dressings).
tons cwt.	tons cwt.	tons cwt.	tons cwt.	tons cwt.	tons cwt.
42 7	42 10	45 3	48 1	45 16	49 7
28 10	29 1	32 7	42 16	42 16	40 16
24 5	25 0	27 11	33 10	34 0	33 11
25 15	26 17	29 15	32 15	34 5	32 19
14 17	15 19	18 17	21 17	23 7	22 1
£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
7 8 6	7 19 6	9 8 6	10 18 6	11 13 6	11 0 6
4 0 0	4 12 0	6 2 0	6 13 0	6 8 0	6 3 0
3 8 6	3 7 6	3 6 6	4 5 6	5 5 6	4 17 6

VARIETY TEST.

STATUTE ACRE FROM EACH CENTRE.

Crimson Tankard	Golden Tankard.	Long Red	Windsor Prizetaker.	New Triumph.	Golden Globe.
tons cwt.	tons cwt.	tons cwt.	tons cwt.	tons cwt.	tons cwt.
18 2	18 10	27 12	30 17	31 6	21 8
32 16	28 9	41 5	38 12	34 4	27 0
18 0	22 1	25 3	24 3	—	29 2
30 8	30 11	44 13	46 16	46 7	41 15
32 0	31 14	32 3	41 14	40 14	33 14
23 6	22 18	30 6	33 13	30 9	22 8
30 3	32 6	32 11	41 8	44 6	29 6
26 5	28 5	26 0	36 0	—	—
24 10	23 18	28 7	30 7	36 1	26 5
21 8	22 7	20 0	22 17	25 8	18 4
24 8	31 12	31 8	21 0	25 0	23 8
25 11	26 12	30 17	33 4	34 17	27 5
29 0	30 13	31 6	36 10	38 12	28 7
22 9	21 14	22 6	25 11	26 1	21 15

V.—OATS.

A.—MANURIAL TEST.

The experiment on the manuring of oats in 1907 was similar to those of the six previous years, except that the plot manured with kainit alone, was omitted in the experiments at present under review.

The trials were carried out at fourteen centres in Counties Antrim, Armagh, Kildare, Londonderry, Mayo, Monaghan, Roscommon, Waterford, and Wicklow.

The object of these experiments has been to test the effects of artificial manures when used singly and in combination, and the complete results are given in Table I., pp. 314–315.

For the sake of easier reference the average figures are reproduced in the following table :—

Plot.	Manures applied per Statute Acre.	Average Yield per Statute Acre.		Increase due to Manures.		Value of Increase.	Cost of Manures.	Estimated Profit per Statute Acre.
		Grain.	Straw.	Grain.	Straw.			
1	No manure. . . .	Cwt. Qr. 17 3	Cwt. 23	—	—	—	—	—
2	1 cwt. Sulphate of Ammonia. . . .	20 2	34	2 3	6	1 3 8	0 15 0	0 8 8
3	3 cwt. of Superphosphate.	21 3	35	4 0	7	1 11 10	0 9 0	1 2 10
4	1 cwt. Sulphate of Ammonia, 3 cwt. of Superphosphate. . . .	24 3	43	7 0	15	2 19 10	1 4 0	1 15 10
5	1 cwt. Sulphate of Ammonia, 3 cwt. Superphosphate, 3 cwt. Kainit. . .	25 2	48	7 3	20	3 11 4	1 12 3	1 19 1

The effects of the application of the different manures were very similar to those obtained in previous years.

The Plots manured with sulphate of ammonia and superphosphate, and with sulphate of ammonia, superphosphate and kainit, respectively, have invariably given profitable returns, but in the case of the Plots manured with sulphate of ammonia, superphosphate, or kainit, alone, the results have been irregular, sometimes profitable, sometimes not. Although in the trials of previous years the Plot dressed with kainit alone gave a slightly higher average yield than the "no manure" Plot, it was decided to omit this Plot in future trials, first because the profit realized from such an application was very small, and in fact at some centres resulted in a slight loss, and secondly because it is now generally understood that the most economical way to use potassic manures for cereals is in conjunction with nitrogenous and phosphatic manures.

The mixture of sulphate of ammonia and superphosphate applied on Plot 4 increased the crop to such an extent as to leave a profit of £1 15s. 10d. per acre, while the same mixture, with the addition of kainit, as applied on Plot 5, resulted in a profit of £1 19s. 1d. per acre. As mentioned above, these two mixtures have given satisfactory returns in each of the five years during which the experiment has been tried in this country.

While, therefore, farmers cannot always rely on getting a profitable increase in crop from the use of sulphate of ammonia, superphosphate or kainit when applied alone, yet they may be fairly confident of realising a substantial profit when all three are used together in the same proportions as they were applied on Plot 5.

The figures referring to the past seven years' experiments are given side by side in the following table:—

Plot.	Manure applied per Statute Acre.	Average yield in 1901.		Average yield in 1902.		Average yield in 1903.		Average yield in 1904.		Average yield in 1905.		Average yield in 1906.		Average yield in 1907.	
		Grain.	Straw.	Grain.	Straw.	Grain.	Straw.	Grain.	Straw.	Grain.	Straw.	Grain.	Straw.	Grain.	Straw.
1	No manure, .	C. Q.	C.	C. Q.	C.	C. Q.	C.	C. Q.	C.	C. Q.	C.	C. Q.	C.	C. Q.	C.
		13 1	22	17 0	30	14 0	26	15 1	28	15 2	23	15 2	25	17 3	28
2	1 cwt. Sulphate of Ammonia, .	16 1	27	19 3	34	15 2	29	18 3	24	18 0	27	18 3	32	20 2	34
3	3 cwt. Superphosphate, .	16 0	27	18 0	33	16 2	27	18 0	30	17 3	26	17 3	30	21 3	35
	3 cwt. Kainit, .	14 0	24	18 0	30	15 0	26	17 2	29	16 3	25	—	—	—	—
4	1 cwt. Sulphate of Ammonia, 3 cwt. Superphosphate, .	19 0	33	21 1	36	19 0	33	21 1	37	20 3	31	21 3	40	24 3	43
5	1 cwt. Sulphate of Ammonia, 3 cwt. Superphosphate, 3 cwt. Kainit,*.	20 1	35	23 0	40	21 0	38	22 3	41	21 1	33	22 1	42	25 2	48

* 2 cwt. in 1901.

B.—VARIETY TEST.

This experiment was designed to test the cropping powers of certain recently-introduced varieties of oats as compared with those of old-established kinds, such as "Potato Oat" and "Black Tartarian." Experiments were carried out at seven centres in Counties Kildare, Louth, Leitrim, and Monaghan. The figures obtained at each centre, together with the average yields of grain and straw produced by each variety, are given in Table II., pp. 316-317. The average yields of each variety obtained in similar experiments carried out during the past six years (excluding 1905), are also shown in the Table.

A true comparison can only be made between the five varieties that were grown at all the centres, viz., Potato, Banner, Abundance, Waverley, and Tartar King. Of these Banner and Waverley have given the best yields of grain, but heavier yields of straw were obtained from both Potato and Black Tartarian.

However, in view of the small number of centres, and bearing in mind the unfavourable character of the season which made it difficult to secure reliable returns, it would be inadvisable to draw definite conclusions from this experiment.

OAT EXPERIMENT—

TABLE I.—Showing the Returns per

Name and Address of Farmer.	County.	Variety of Oat.	Character of Soil.	Plot 1	
				No Manure.	
				Grain.	Straw.
				Cwt. Qr.	Cwt.
J. McLean, The Park, Priestland.	Antrim.	Poland.	Light Loam.	6 3	16
S. Nevin, Oaughey, Ballymoney.	"	"	Medium Loam.	11 0	27
W. Richardson, Maydown.	Armagh.	Blantyre.	Loam.	17 3	27
— Coulter, Oladymore.	"	Potato.	Gravelly Loam.	22 1	32
J. Flynn, Skerries, Athy.	Kildare.	Black Tartary.	Heavy Loam.	12 3	12
W. McCollum, Drumeroon, Coleraine.	London-derry.	Potato.	Gravelly Loam.	20 2	30
J. T. Moran, Park, Turlough, Castlebar.	Mayo.	"	Clay Loam.	17 2	26
M. Moran, Shraheen, Foxford.	"	"	Peat.	16 2	28
T. Callan, Drumhilla, Carrickmacross.	Monaghan.	"	Clay Loam.	17 0	25
R. Wright, Drumlara, Monaghan.	"	Poland.	Loam.	16 0	32
J. Drury, Ardsallagh, Boyle.	Roscommon.	Black Tartary.	Stiff Clay.	24 1	34
P. Sheridan, Kilrush, Dunganarvan.	Waterford.	"	Clay Loam.	16 0	33
T. Murphy, Croneynhorn, Carnew.	Wicklow.	"	Light Clay.	24 0	30
M. Keenan, Ashtown, Roundwood.	"	"	Gravelly Clay.	26 3	41
Average yield per Statute Acre.				17 3	28
Increase due to Manures.				—	—
Value of Increase: Grain at 8d. per stone and Straw 1s. 6d. per Cwt.				—	—
Cost of Manures.				—	—
Estimated Profit per Statute Acre.				—	—

MANURIAL TEST.

Statute Acre from each Centre.

Plot 2. 1 Cwt. Sulphate of Ammonia.		Plot 3. 3 Cwt. Super- phosphate.		Plot 4. 1 Cwt. Sulphate of Ammonia, 3 Cwt. Super- phosphate.		Plot 5. 1 Cwt. Sulphate of Ammonia, 3 Cwt. Super- phosphate, 3 Cwt. Kalnit.	
Grain.	Straw.	Grain.	Straw.	Grain.	Straw.	Grain.	Straw.
Owt. Qr.	Owt.	Owt. Qr.	Owt.	Owt. Qr.	Owt.	Owt. Qr.	Owt.
11 3	28	9 2	20	14 2	33	16 1	43
13 3	36	14 0	39	19 3	46	21 0	50
16 2	35	22 0	54	21 2	55	22 0	70
21 0	48	20 0	45	24 2	47	22 2	64
14 0	17	18 3	18	19 2	20	17 2	24
22 0	34	23 0	37	23 1	39	25 1	41
21 3	28	22 0	30	25 2	35	26 0	35
21 0	30	21 3	30	24 0	36	26 2	40
20 0	32	19 3	27	23 3	35	26 3	40
18 0	45	19 0	40	24 0	59	23 1	52
29 2	35	33 0	42	35 1	70	36 0	83
16 3	34	18 2	37	19 0	39	22 0	46
27 3	32	26 2	33	33 2	42	29 3	45
34 2	42	37 2	47	40 0	49	41 1	50
20 2	34	21 3	35	24 3	43	25 2	48
2 3	6	4 0	7	7 0	15	7 3	20
£ s. d. 1 3 8		£ s. d. 1 11 10		£ s. d. 2 19 10		£ s. d. 3 11 4	
0 15 0		0 9 0		1 4 0		1 12 3	
0 8 8		1 2 10		1 15 10		1 19 1	

OAT EXPERIMENT—

TABLE II.—Showing the Returns per

Name and Address of Farmer.	County.	Character of Soil.	Potato.		Black Tartarian.	
			Grain.	Straw.	Grain.	Straw.
			Cwt. Qr.	Cwt.	Cwt. Qr.	Cwt.
J. Flynn, Skerries, Athy, .	Kildare, .	Moory, . .	14 1	18	—	—
R. McDowell, Mulharlan, Dundalk.	Louth, .	Loam, . .	24 2	62	—	—
W. A. Doran, Tullakeel, Ardee.	„	„ . .	23 0	44	—	—
P. McGinnis, Taich, Drumsna, Leitrim.	„	Peaty Soil, .	18 2	32	20 1	36
J. Connolly, Drumlea, Carrigallen.	„	Clay Loam, .	19 0	33	22 3	38
A. Bothwell, Newtownmore, „	„	Loam, . .	18 3	30	16 0	30
J. Wainor, Drumaconnor, .	Monaghan. .	„ . .	24 0	40	23 2	38
Average yield per Statute Acre in 1907,			20 1	37	20 2	35
Average yield per Statute Acre in 1906,			19 3	35	19 2	30
Average yield per Statute Acre in 1904,			19 0	36	20 1	35
Average yield per Statute Acre in 1903,			18 1	41	19 3	40
Average yield per Statute Acre in 1902,			20 1	36	21 0	34
Average yield per Statute Acre in 1901,			17 0	29	17 0	26

VARIETY TEST.

Statute Acre from each Centre.

Banner.		Abundance.		Waverley.		Tartar King.		Island Magee.		Newmarket.	
Grain.	Straw.	Grain.	Straw.	Grain.	Straw.	Grain.	Straw.	Grain.	Straw.	Grain.	Straw.
Cwt. Qr.	Cwt.	Cwt. Qr.	Cwt.	Cwt. Qr.	Cwt.	Cwt. Qr.	Cwt.	Cwt. Qr.	Cwt.	Cwt. Qr.	Cwt.
15 1	24	12 3	22	20 0	30	13 3	18	—	—	—	—
31 1	46	28 0	52	28 1	45	28 3	45	25 3	56	29 1	41
22 0	44	14 1	33	21 1	44	16 3	37	21 1	54	21 0	45
18 0	30	17 3	35	21 1	34	16 0	38	—	—	—	—
18 0	33	21 0	42	23 0	36	17 0	40	—	—	—	—
21 1	26	18 3	34	20 3	36	20 0	36	—	—	—	—
20 3	29	22 2	35	21 0	30	22 2	28	—	—	22 3	25
21 0	33	19 0	36	22 1	36	19 1	35	23 2	55	24 1	37
22 0	34	20 2	32	20 3	33	20 0	30	18 2	39	—	—
23 3	40	21 1	33	22 2	35	19 1	29	—	—	—	—
22 2	39	19 1	33	22 2	36	18 1	33	—	—	—	—
23 0	32	20 2	30	23 2	34	18 3	29	—	—	—	—
—	—	21 1	27	22 0	29	19 0	27	—	—	—	—

VI.—TURNIPS.

A.—MANURIAL.

Two series of experiments on the manuring of the turnip crop were carried out in 1907, similar to those of the six previous years, 1901 to 1906. The objects of these experiments were:—

- (1.) To test the effects of artificial manures in combination with farmyard manure.
- (2.) To test the effects of artificial manures used alone.

The first series of experiments, designed to test the effects of the addition of artificial manures to farmyard manure, was carried out at thirty-two centres in Counties Antrim, Armagh, Carlow, Cork, Dublin, Fermanagh, Galway, Kildare, Limerick, Londonderry, Longford, Louth, Mayo, Monaghan, Roscommon, Tipperary, and Westmeath.

The results of this experiment are shown on Table I., pp. 320–321.

The application of 20 tons of dung (see Plot 2) may be regarded as a standard dressing, and one which is very generally relied on, and it was the object of the experiment to determine whether equally heavy crops could be obtained on farms where the supply of dung is necessarily limited, by supplementing a lighter dressing of farmyard manure with suitable artificial manures. A comparison of the yields obtained on Plots 2 and 4 shows that where 4 cwt. superphosphate was used along with 10 tons of dung, a slightly heavier crop was obtained than where the dung was applied alone at the rate of 20 tons per acre.

This result is practically similar to those obtained in five of the previous years' experiments. Only in one instance, in 1901, was the balance in favour of the heavier dressing of dung (to the extent of 10 cwt. of turnips per acre). There seems little doubt, therefore, that where farmyard manure is scarce, farmers may rely upon obtaining a perfectly satisfactory crop of turnips by using a lighter dressing of dung and supplementing it with an application of about 4 cwt. superphosphate per acre. The experiment was further intended to show whether other forms of artificial manure (nitrogenous and potassic) could be profitably applied along with the superphosphate (see plots 5, 6, and 7.) The returns from individual centres are so contradictory on this point that conclusions drawn from the average figures are apt to prove misleading.

Where land is in fairly good condition, it is very doubtful whether the use of manures containing nitrogen and potash can be recommended, but on land which is naturally poor, or is in low condition, it is probable that such manures will pay for their application.

In 1906, an extra Plot (No. 7) was introduced into the experiments with the object of testing the relative effects of kainit and sulphate of potash on the turnip crop. Plot 7 was accordingly manured with similar quantities of dung, superphosphate, and sulphate of ammonia, as were applied to Plot 6, whilst the equivalent amount of potash contained in 3 cwt. kainit was supplied in this instance in $\frac{3}{4}$ -cwt. sulphate of potash. The average yield of the two Plots, and also the yield of the individual centres indicate no marked superiority of either manure

The second series of experiments designed to test the effects of artificial manures used alone, was carried out on nineteen farms in Counties Antrim, Cork, Galway, Kildare, Limerick, Louth, Mayo, Tipperary, and Waterford. The detailed results will be found in Table II., pp. 322-323.

The fact that phosphatic manures are all important to the successful growth of turnips is so well known among farmers that it is hardly necessary to call attention to the results obtained on Plot 2, to which superphosphate was applied at the rate of 4 cwt. per statute acre, the crop produced being such as to leave an estimated profit from the use of the manures of £3 12s. 0d. per acre.

From a comparison of the figures referring to Plots 2, 3, and 4, an opinion can be formed as to the advisability of adding nitrogenous and potassic manures to the superphosphate. On Plot 3 the addition of 1 cwt. sulphate of ammonia did not increase the crop sufficiently to pay for the extra cost of the manure, and no advantage can therefore be claimed from its use; but the further addition of 3 cwt. kainit on Plot 4 resulted in an increased profit of 15s. 1d. and 15s. 9d. respectively per acre, over that obtained from the use of superphosphate alone and of superphosphate and sulphate of ammonia together. The inference to be drawn from these figures is that more satisfactory returns, both as to yield of crop and as to profit, are likely to be got from the use of a *complete* mixture of manures than from the use of an *incomplete* mixture.

Plot 5 received a dressing of 6 cwt. superphosphate, $1\frac{1}{2}$ cwt. sulphate of ammonia, and $4\frac{1}{2}$ cwt. kainit, *i.e.*, half as much again of the same manures as were applied to Plot 4. This extra manuring resulted in an increased yield, as compared with Plot 4, at all but three centres. The average profit per acre after deducting the cost of the manures, is only $\frac{4}{6}$ more than that obtained on plot 4. Nevertheless the fact that at four centres the yield on plot 5 was 6 to 7 tons per acre more than that on plot 4 indicates that in some cases the heavier application is a profitable one.

TURNIP EXPERIMENT.—MANURIAL

TABLE I.—Showing the Returns

Name and Address of Farmer.	County.	Character of Soil.	Variety of Turnip.
R. Gregg, Broughshane, Ballymena, . .	Antrim, . .	Clay Loam, . .	Imp. Purple Top, .
— Love, Kilerreen, Glarryford,	"	Light Loam, . .	Magnum Bonum, .
H. Lyle, Ballymacaulley,	Armagh, . .	Loam,	Purple Top, . . .
P. Dowling, Slaney Lr., Tullow,	Carlow, . .	Clay Loam, . .	Best-of-All, . . .
P. O'Connell, Kilmuney, Ovens, Cork, .	Cork (W.), .	Light Loam, . .	"
Dr. P. Gould, Raleigh, Macroom	"	Medium Loam, .	Purple Top, . . .
R. J. Godsel, Newcestown,	"	"	Best-of-All, . . .
T. O'Sullivan, Cloughduv, Crookstown, .	"	"	Magnum Bonum, .
J. J. Lawlor, Irishtown Ho., Clondalkin, .	Dublin, . .	Loam,	Purple Top, . . .
R. Maxwell, Ballyreagh, Tempo,	Fermanagh, .	Light Loam, . .	Magnum Bonum, .
A. Savage, Lisboy, Tempo,	"	Medium Loam, .	Best-of-All, . . .
F. M'Brien, Callagbeen, Rosscar, Belleek, .	"	"	Magnum Bonum, .
The Monastery, Brookloydge, Ballyglunin,	Galway, . .	Peaty Loam, . .	"
P. Lally, Kilbeacanty, Gort,	"	Clay Loam, . .	"
M. Fallon, Curraferry, Ballinamore, . .	"	Peaty Loam, . .	"
E. Moran, Roseville, Ballysax, Curragh Camp,	Kildare, . .	Strong Loam, . .	Purple Top, . . .
J. Saunders, Carnalway, Brannoxtown, . .	"	Clay,	"
T. Flanagan, Rathsilla, Fonstown, . . .	"	Strong Loam, . .	"
— Bannantyne, Fanningtown Castle, Patrickswell,	Limerick, . .	Peaty, mixed with Limestone Loam, .	Lord Edward (Purple Top).
W. Butterley, Seafeld, Dunleer,	Louth, . . .	Heavy Loam, . .	Best-of-All, . . .
J. H. McArdle, Rampark, Dundalk, . . .	"	Light Loam, . .	Purple Top, . . .
J. Kane, Castledawson,	Londonderry, .	Medium Loam, .	"
C. Baxter, Ardagh,	Longford, . .	Loam,	"
M. Magun, Killashee,	"	"	Best-of-All, . . .
J. Stuart, Church Road, Ballina,	Mayo,	Strong Loam, . .	"
P. Larmour, Tattenadonagh, Ballinode, .	Monaghan, .	Light Loam, . .	Purple Top, . . .
H. Murry, Lugboy, Elphin,	Roscommon, .	Stiff Clay, . . .	Magnum Bonum, .
J. Egan, Castleplunkett, Castleroa, . . .	"	"	"
J. Neary, Clonfree, Strokestown,	"	"	"
M. Regan, Cloonard, Castleroa,	"	"	"
J. Wolfe, Rockford, Nenagh,	Tipperary, . .	Loam,	"
J. Conolly, Portnashangan, Mullingar, .	Westmeath, .	Shallow Loam, .	"
Average yield per Statute Acre,			
Increase due to Manures,			
Value of Increase : Turnips at 8s. per ton,			
Cost of Manures,			
Estimated Profit per Statute Acre,			

TEST (WITH FARMYARD MANURE).

per Statute Acre from each Centre.

Plot 1. No Manure.	Plot 2. 20 Tons Farmyard Manure.	Plot 3. 10 Tons Farmyard Manure.	Plot 4. 10 Tons Farmyard Manure. 4 Cwt. Super- phosphate.	Plot 5. 10 Tons Farm- yard Manure, 4 Cwt. Super- phosphate. 1 Cwt. Sul- phate of Ammonia.	Plot 6. 10 Tons Farm- yard Manure, 4 Cwt. Super- phosphate, 1 Cwt. Sulphate of Ammonia, 3 Cwt. Kainit.	Plot 7. 10 Tons Farm- yard Manure, 4 Cwts. Super- phosphate, 1 Cwt. Sulphate of Ammonia, 1 Cwt. Sulphate of Potash (not less than 90% pure).
Tons Cwt. 0 15	Tons Cwt. 17 3	Tons Cwt. 10 4	Tons Cwt. 10 12	Tons Cwt. 12 9	Tons Cwt. 17 3	Tons Cwt. 17 3
0 0	21 7	13 16	20 14	29 7	29 15	29 8
0 0	11 0	10 15	22 9	27 3	25 19	25 1
7 6	13 7	12 6	13 10	18 3	19 1	19 4
15 8	36 0	34 6	39 8	37 8	40 11	40 6
13 3	24 11	19 8	27 3	28 11	31 3	32 11
4 0	27 3	25 3	30 17	29 14	31 8	32 11
7 14	20 16	19 14	18 6	21 3	21 14	22 6
11 0	20 3	20 6	20 2	16 0	20 17	20 6
0 0	31 1	17 15	23 15	23 15	21 1	17 6
0 0	15 19	11 1	21 5	23 2	23 6	22 6
0 0	16 13	11 1	18 17	17 2	17 11	16 16
3 12	18 2	15 0	19 19	22 4	26 12	23 2
4 5	15 1	13 6	15 8	15 18	17 7	17 0
0 0	17 13	15 11	17 10	21 13	19 10	20 16
13 10	17 0	16 0	17 12	21 10	23 0	19 6
16 0	19 10	17 10	20 5	19 12	21 10	21 3
2 0	18 15	13 15	19 0	19 7	20 8	18 0
16 15	32 15	28 15	31 15	31 15	34 0	35 0
13 9	33 1	28 2	26 2	31 5	34 15	28 19
7 3	20 12	18 6	20 10	23 18	24 0	24 5
0 10	18 10	16 0	16 3	18 3	17 14	16 13
22 4	28 5	25 5	30 6	28 5	26 5	27 5
3 18	17 0	12 4	24 1	24 1	23 9	23 3
10 0	28 0	20 6	25 10	23 2	34 7	34 5
9 0	26 0	22 10	29 14	25 18	25 18	27 0
15 14	25 19	24 10	29 9	31 9	30 19	31 11
16 8	27 10	24 18	30 14	31 18	32 16	33 2
12 7	25 13	22 16	29 12	32 12	36 17	37 3
16 9	27 11	24 19	30 15	31 18	32 16	33 2
3 15	27 0	24 15	25 10	27 0	28 5	28 5
4 5	20 0	16 18	18 0	20 0	22 4	26 12
7 16	22 9	18 19	23 5	24 14	26 0	25 13
—	14 13	11 3	15 9	16 18	18 4	17 17
—	£ s. d. 5 17 2	£ s. d. 4 9 2	£ s. d. 6 3 7	£ s. d. 6 15 3	£ s. d. 7 5 7	£ s. d. 7 2 9
—	4 0 0	2 0 0	2 12 0	3 7 0	3 15 3	3 15 3
—	1 17 2	2 9 2	3 11 7	3 8 3	3 10 4	3 7 6

TURNIP EXPERIMENT.—MANURIAL

TABLE II.—Showing the Returns

Name and Address of Farmer.	County.	Character of Soil.	Variety of Turnip.
W. Barklie, Lismenary, Ballynure,	Antrim,	Medium Loam,	Joe Chamberlain,
R. Gregg, Broughshane, Ballymena,	"	Clay Loam,	Improved Purple Top.
— Love, Kilgreen, Glarryford,	"	Light Loam,	Magnum Bonum.
M. Fallon, Curragarry, Ballinamore.	Galway,	Peaty Loam,	"
P. Finerty, Doning, Loughrea,	"	Clay Loam,	"
P. Lally, Kilbeacarry, Gort,	"	"	"
J. Sargent, Killeel, Rathmore,	Kildare,	Light Loam,	Purple-top Swede,
— Bannantyne, Fanningstown Castle, Patrickswell.	Limerick,	Peaty mixed with Limestone Loam.	Lord Edward Purple Top.
J. T. Dolan, Ardee,	Louth,	Light Loam.	Skirvings Imp. Purple Top.
W. Brennan, Manfieldstown, Castlebellingham.	"	"	Purple Top,
J. Stuart, Church Road, Ballina,	Mayo,	Strong Loam,	Best-of-All,
T. M'Nicholas, Aughadrinagh, Castlebar.	"	Stiff Clay,	"
J. Carnew, Belcira, Castlebar,	"	Medium Loam,	"
J. Wolfe Rockford, Nenagh,	Tipperary,	Loam,	Magnum Bonum,
J. Mullally, Prieststown, Drangan,	N.R. Tipperary,	Clay,	Bronze-top Swede,
J. J. Walsh, Moorstown, Cahir,	S.R. "	"	Purple-top Swede,
G. Brown, Kilmaethomas,	Waterford,	Medium Loam,	"
J. Dea, Creaghmore, Youghal,	Cork, E.,	Sandy Loam,	"
D. Ross, Tweedmount, Blarney,	"	Loam,	Green Top Aberdeen.
Average Yield per Statute Acre,			
Increase due to Manures,			
Value of Increase: Turnips at 8s. per ton,			
Cost of Manures,			
Estimated Profit per Statute Acre,			

TEST (WITHOUT FARMYARD MANURE).

per Statute Acre from each Centre.

Plot 1. No Manure.	Plot 2. 4 Cwt. Superphosphate.	Plot 3. 4 Cwt. Superphosphate 1 Cwt. Sulphate of Ammonia.	Plot 4. 4 Cwt. Superphosphate, 1 Cwt. Sulphate of Ammonia, 3 Cwt. Kainit.	Plot 5. 6 Cwt. Superphosphate, 1½ Cwt. Sulphate of Ammonia, 4½ Cwt. Kainit.
Tons Cwt.	Tons Cwt.	Tons Cwt.	Tons Cwt.	Tons Cwt.
0 16	9 4	13 16	18 16	23 15
0 15	6 6	10 7	10 17	18 15
0 0	13 16	15 6	18 18	26 0
0 0	11 0	11 3	19 7	20 6
0 0	8 16	12 9	15 5	16 3
4 5	14 15	15 1	15 7	15 15
8 10	16 10	16 5	22 6	21 8
16 10	26 5	27 15	31 0	32 15
10 5	14 5	17 0	17 6	17 9
6 5	20 18	22 16	22 15	26 4
10 0	23 18	25 10	29 0	35 6
3 6	20 15	22 9	27 10	32 0
4 10	18 7	20 6	25 8	32 7
3 15	15 0	18 8	22 10	21 15
1 14	11 13	14 5	16 9	19 17
3 12	11 17	13 3	17 6	19 10
2 0	14 14	16 7	17 14	20 4
8 5	20 4	20 10	19 18	20 11
4 7	9 13	9 10	11 13	11 0
4 13	15 3	16 19	19 19	22 14
—	10 10	12 6	15 6	18 1
—	£ s. d. 4 4 0	£ s. d. 4 18 4	£ s. d. 6 2 4	£ s. d. 7 4 5
—	0 12 0	1 7 0	1 15 3	2 12 10
—	3 12 0	3 11 4	4 7 1	4 11 7

TURNIP EXPERIMENT.—

TABLE III.—Showing the Returns per

Name and Address of Farmer.	County.	Character of Soil.	Stirling Castle. (1)	Im- proved Purple Top. (2)	Ele- phant. (3)	Kan- garoo. (4)
			T. C.	T. C.	T. C.	T. C.
J. Lyons, Carnglass, Dervock.	Antrim.	Medium Loam.	12 19	15 11	13 7	11 19
S. J. Robinson, Dromona, Craigs.	"	"	—	29 11	25 6	26 4
C. Hanna, Luke View, Crossmuglon.	Armagh.	Light.	—	20 12	20 2	22 4
W. Doyle, Ardattin, Tullow.	Carlow.	Light Loam.	29 7	26 2	27 8	24 0
D. Ahern, Bridgetfield, Lady's-bridge.	Cork, E.	Loam.	—	33 17	34 3	—
C. O'Callaghan, Scarra, Glentane.	"	Light Loam.	—	23 9	22 11	—
C. O'Callaghan, Scarra, Glentane.	"	"	—	27 14	27 17	—
D. Ryan, Keale, Glentane.	"	Loam.	—	18 14	14 11	—
P. O'Connell, Kilmurny, Ovens.	Cork, W.	Light Loam.	—	32 11	33 14	—
Dr. P. Gould, Raleigh, Macroom.	"	Medium Loam.	—	27 6	34 11	—
T. O'Sullivan, Cloughduv, Crookstown.	"	"	—	11 14	8 10	—
J. Kelly, Rathella, Fonestown, Athy.	Kildare.	Loam.	19 6	15 0	16 0	16 0
S. Seagrave, Dunany, Dunleer.	Louth.	Light Loam.	22 14	23 10	25 2	22 17
S. Feehan, Manfieldstown, Castlebellingham.	"	Loam.	22 6	24 0	24 16	22 16
J. Nugent, Ballinacurra, Carrick-on-Suir.	Waterford.	Medium Loam.	21 13	25 0	19 14	23 14
J. B. A. Bosanquet, Lahardan, Portlao.	"	"	22 16	24 7	17 9	20 1
Average Yield per Statute Acre in 1907.			21 12	23 13	22 16	21 2
Average Yield per Statute Acre in 1906.			25 0	27 16	26 2	27 3
Average Yield per Statute Acre in 1905.			23 16	24 10	23 7	25 16
Average Yield per Statute Acre in 1904.			26 8	25 16	25 17	25 1
Average Yield per Statute Acre in 1903.			25 11	25 19	24 4	24 18
Average Yield per Statute Acre in 1902.			19 15	20 11	19 16	22 6
Average Yield per Statute Acre in 1901.			22 16	22 6	22 5	25 6

B.—VARIETY TEST.

The object of this experiment was to test the cropping capabilities of different varieties of swedes and yellow turnips.

The experiment was conducted on fifteen farms in Counties Antrim, Armagh, Carlow, Cork, Kildare, Louth, and Waterford.

VARIETY TEST.

Statute Acre from each Centre.

Best of All. (5)	Magnum Bonum. (6)	Triumph. (7)	Bronze Top. (8)	Monarch. (9)	Aberdeen Green Top. (10)	Centenary. (11)	Fosterton Hybrid. (12)	Aberdeen Purple Top. (13)
T. C.	T. C.	T. C.	T. C.	T. C.	T. C.	T. C.	T. C.	T. C.
14 3	13 7	12 4	13 17	11 7	19 6	27 1	19 8	24 1
29 15	25 15	28 13	26 13	26 0	39 11	37 15	36 4	41 1
24 0	25 3	—	21 2	18 18	—	—	—	—
29 6	29 12	26 1	20 16	27 1	21 14	21 4	24 12	21 7
30 6	37 11	35 9	35 12	—	—	—	—	—
26 18	25 14	25 14	25 9	—	—	—	—	—
36 6	35 11	30 18	35 0	—	—	—	—	—
18 9	20 8	19 6	21 6	—	—	—	—	—
37 3	34 6	32 17	35 8	—	—	—	—	—
36 11	34 11	34 11	37 3	—	—	—	—	—
12 6	14 0	10 16	12 6	—	—	—	—	—
17 10	22 0	16 10	13 5	18 10	—	—	—	—
24 10	23 14	24 19	24 9	20 8	21 4	31 19	27 1	26 0
25 8	21 7	21 15	21 16	19 17	26 17	33 2	—	—
25 19	24 3	20 7	26 6	18 6	—	—	—	—
22 10	20 4	20 3	21 13	16 14	28 3	33 11	31 8	28 0
26 5	25 9	24 0	24 10	19 13	26 2	30 15	27 13	28 2
29 13	27 10	28 0	25 7	26 10	26 11	29 5	27 4	25 15
26 14	26 10	24 15	—	—	28 6	36 10	31 0	29 6
27 5	27 11	26 19	—	—	30 7	36 16	30 16	30 8
26 5	25 14	25 18	—	—	28 8	36 16	29 17	28 2
23 11	23 6	24 8	—	—	20 3	27 4	24 5	20 8
27 9	27 12	24 7	—	—	24 10	—	24 17	22 1

The first nine varieties on the list are swedes and the rest are yellow turnips. The figures referring to each centre, together with the average results obtained with all varieties tested in the past six seasons, will be found on Table III., above.

The following Tables show the average results obtained in similar experiments carried out in the six previous years, 1901 to 1906, and those of 1907.

(1.) *Artificial Manures used in combination with Farmyard Manure.*

Manure.	Yield per Statute Acre in 1901.	Yield per Statute Acre in 1902.	Yield per Statute Acre in 1903.	Yield per Statute Acre in 1904.	Yield per Statute Acre in 1905.	Yield per Statute Acre in 1906.	Yield per Statute Acre in 1907.
	Tons. Cwt.	Tons. Cwt.	Tons. Cwt.	Tons. Cwt.	Tons. Cwt.	Tons. Cwt.	Tons. Cwt.
No Manure,	5 8	5 14	2 4	5 15	7 3	6 15	7 16
20 tons Farmyard Manure, .	23 19	22 16	19 3	26 6	23 9	23 10	22 9
10 tons Farmyard Manure, .	19 4	17 14	14 5	22 4	20 9	20 4	18 19
10 tons Farmyard Manure, 4 cwt. Superphosphate, .	23 10	23 9	20 9	27 0	25 0	24 11	23 5
10 tons Farmyard Manure, 4 cwt. Superphosphate, 1 cwt. Sulphate of Ammonia, .	24 5	25 12	21 19	28 16	25 11	24 13	24 14
10 tons Farmyard Manure, 4 cwt. Superphosphate, 1 cwt. Sulphate of Ammonia, 3 cwt. Kainit,	24 13	27 6	23 13	29 7	26 15	25 15	26 0
10 tons Farmyard Manure, 4 cwt. Superphosphate, 1 cwt. Sulphate of Ammonia, $\frac{1}{2}$ cwt. Sulphate of Potash, .	—	—	—	—	—	25 18	25 13

(2.) *Artificial Manures used alone.*

Manure.	Yield per Statute Acre in 1901.	Yield per Statute Acre in 1902.	Yield per Statute Acre in 1903.	Yield per Statute Acre in 1904.	Yield per Statute Acre in 1905.	Yield per Statute Acre in 1906.	Yield per Statute Acre in 1907.
	Tons. Cwt.	Tons. Cwt.	Tons. Cwt.	Tons. Cwt.	Tons. Cwt.	Tons. Cwt.	Tons. Cwt.
No Manure,	4 10	5 11	2 2	4 9	9 3	4 19	4 13
4 cwt. Superphosphate, .	19 8	17 12	14 7	20 7	19 1	18 5	15 3
4 cwt. Superphosphate, 1 cwt. Sulphate of Ammonia, .	22 9	18 10	15 1	21 18	19 10	19 11	16 19
4 cwt. Superphosphate, 1 cwt. Sulphate of Ammonia, 3 cwt. Kainit,	23 14	23 5	18 6	24 18	22 7	22 16	19 19
6 cwt. Superphosphate, 1 $\frac{1}{2}$ cwt. Sulphate of Ammonia, $\frac{1}{2}$ cwt. Kainit,	—	—	—	—	—	25 1	22 14
2 cwt. Superphosphate, $\frac{1}{2}$ cwt. Sulphate of Ammonia, 2 cwt. Kainit, 2 cwt. Dissolved Bones, 1 cwt. Bone Flour,	24 8	23 13	19 9	25 3	22 14	—	—

Copies of these Reports in leaflet form (Nos. 36 to 41) may be obtained free of charge, and post free, on application to the Secretary, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion-street, Dublin. Letters of application so addressed need not be stamped.

OFFICIAL DOCUMENTS.

I.—AGRICULTURE.

SCHOOL OF RURAL DOMESTIC ECONOMY.

KILLESHANDRA VILLAGE INSTITUTE, COUNTY CAVAN.

Form A 135 (f.)

The School is open to female pupils over fifteen years of age, without restriction as to religious denomination.

The course of instruction is intended to qualify the pupils to perform efficiently the work of rural life. It includes Household Management, Cookery, Laundry Work and Needle Work. Attention is also given to Dairy Work and Poultry Keeping.

Intending pupils must undertake to attend regularly and punctually. They may be required to produce certificates of good health and character and to pass an examination in the elements of English and Arithmetic.

Arrangements have been made which admit of four of the pupils being boarded and lodged at the School. The girls to whom residential places will be awarded will be selected by the Manager subject to the approval of the Department, and they will be allowed to reside at the School for such periods during the session as the Department may decide.

The session will commence on 10th October, 1907, and will terminate on 31st July, 1908.

The session will be divided into three terms as follows :—

First term from 10th October to 20th December, 1907.

Second term from 7th January to 10th April, 1908.

Third term from 21st April to 31st July, 1908.

The classes will be held each day (Sunday excepted) from 11 a.m. to 5 p.m.

Fees.

The fees are proportioned to the valuation of the holdings of the pupils' parents or guardians as follows :—

A. *For Day Pupils.*

Where the valuation does not exceed £20	.	2s. 6d. per term
" " exceeds £20 but does not exceed £40	.	3s. 6d. " "
" " exceeds £40	;	5s. 0d. " "

B. *For Resident Pupils.*

Where the valuation does not exceed £20	. £1	0s.	0d.	„	„
„ „ exceeds £20 but does not exceed £40	. £1	10s.	0d.	„	„
„ „ exceeds £40	. £2	0s.	0d.	„	„

In the case of persons, such as mothers of families, who are too much occupied with their household work to attend regularly throughout the term, special arrangements will be made to admit of their attending any one course or separate lessons.

Applications for admission should be made to

THE DOMESTIC ECONOMY INSTRUCTRESS,

THE INSTITUTE,

KILLESHANDRA.

THE ULSTER DAIRY SCHOOL.

COOKSTOWN, CO. TYRONE.

Form A 255 (a).

The School is situated on an extensive tillage and dairy farm about three miles from Cookstown Railway Station. It is provided with the most modern equipment for the teaching of the several subjects included in the programme.

The classes are open to female students only.

The course of training includes :—

- I. The practice of dairy work. The treatment of milk and the making of butter on a large and on a small scale with the most modern machinery and implements, as well as with the appliances generally used in farm dairies.
- II. Instruction in the feeding and management of cows, and in farmyard lore.
- III. Instruction in poultry-keeping. Breeds; their suitability for different purposes and different localities; housing, feeding and management; grading and packing of eggs; hatching and rearing of chickens by natural and by artificial methods; fattening, killing, plucking, trussing and preparation for market.
- IV. Instruction in domestic work, embracing plain cookery, plain needlework and laundry work.

The fee for tuition, board and lodging during one session is £3 3s., and is payable to the Superintendent of the School on entrance.

Four sessions, each of about eleven weeks' duration, and commencing, respectively, in January, March, July, and October, are held in each year,

Intending students must be at least **seventeen** years of age on the date of their admission to the School. They are required to produce certificates of good health and character and to pass an examination in the elements of English and Arithmetic. This examination is held at the School at the opening of each session.

Students are eligible for admission to a second consecutive session, provided they attain the required standard at the examination at the conclusion of their first session.

Students who have attended during two sessions, and who are desirous of qualifying for the position of Itinerant Instructor in butter making or poultry keeping under a County Committee of Agriculture or of Teacher in a School of Rural Domestic Economy for girls may be admitted to a third session provided they attain the required standard at the second terminal examination and satisfy the Department's examiner as to their ability to impart instruction. If their progress during the third session is satisfactory they may be re-admitted to a fourth, fifth, or even a sixth session at the option of the Department to enable them to complete their training.

The Department do not undertake to employ or to find employment for students on completion of their training at the School.

The students are at all times under the supervision of a responsible matron.

Applications for admission must be made on the prescribed form, which can be obtained from—

THE SECRETARY,

Department of Agriculture and

Technical Instruction for Ireland,

Upper Merrion-street, Dublin.

ROYAL COLLEGE OF SCIENCE, DUBLIN.

SESSION, 1908-9.

Form A. 133 (a.)

SCHOLARSHIPS IN AGRICULTURE, HORTICULTURE, FORESTRY, AND CREAMERY MANAGEMENT.

A limited number of scholarships will be offered in 1908 for competition among young men in Ireland who desire to acquire a thorough knowledge of technical Agriculture, and, in addition, one or more scholarships will be provided for students who intend to specialise in either Horticulture, Forestry or Creamery Management. Each scholarship includes—(1) free admission to the first year's course of instruction

in the College, (2) one third-class railway fare to Dublin at the beginning of the session, and one third-class fare from Dublin at the end of the session, and (3) either of the following at the option of the Department—(a) a maintenance allowance of one guinea per week while in attendance at the Royal College of Science or elsewhere, as the Department may decide; or (b) free board and residence at one of the Department's institutions; in the latter case a small grant will be made to each student towards the cost of books and apparatus.

A scholarship is tenable for one year, but selected candidates must undergo a probationary course of one term of about three months. If satisfactory progress be made by the holder, the scholarship may be renewed for a second, and even for a third year, to enable the student to complete his course.

The Department do not undertake to employ, or to find employment for, students at the close of the period of training.

Holders of these scholarships will be subject to the regulations made from time to time at the Royal College of Science, and will be required to devote their whole time to the course of study prescribed for them by the Department.

Candidates, who should be between 18 and 30 years of age on the 1st September, 1908, must make application on a form, which may be obtained from the Registrar, Royal College of Science, Dublin, after the 1st February, 1908, and which should be returned not later than the 15th August, 1908.

Candidates must have been born in Ireland, or have been resident in Ireland for three years immediately prior to the 1st June, 1908.

The examination will take place at the Royal College of Science, Stephen's Green, Dublin, on the 2nd and 3rd September, 1908, and at the Albert Agricultural College, Glasnevin, on the 4th September, commencing each day at 10.0 a.m. No expenses in connexion with attendance at this examination will be allowed.

Candidates will be tested in the following :—

A.—ENGLISH.

- (1) Composition—to be tested by an essay.
- (2) Grammar—Etymology, and the principles of Syntax.
- (3) Literature—the following works :—(a) Lockhart, *History of Napoleon Buonaparte*, Chaps. I. to XIV., inclusive; (b) Goldsmith, "The Deserted Village"; (c) Coleridge, "The Ancient Mariner."

B. One of the following :—

LATIN ;
IRISH ;
FRENCH ;
GERMAN.

In these languages the papers will comprise—

- (1) Passages for translation from the following texts:—
 Latin—Cæsar, "De Bello Gallico" (Book I.).
 Irish—Colm ó Conaíne "Poll an Píobaire."
 French—Mormier, "Le Protégé de Marie Antoinette."
 German—Anderson, "Bilderbuch ohne Bilder."
- (2) Easy passages for translation into English from other texts.
- (3) Questions in Grammar—Accidence and the principal rules of Syntax.
- (4) Short sentences for translation from English.

C.—MATHEMATICS.

- (1) Arithmetic—including elementary Mensuration.
- (2) Algebra—to quadratic equations inclusive.
- (3) Plane Geometry—to be tested partly by questions requiring formal proofs of propositions from Euclid I.-III., and partly by practical problems to be solved by compass and scale of equal parts.

D. Practical experience of one of the following —

AGRICULTURE ;

HORTICULTURE ;

FORESTRY ;

DAIRYING AND CREAMERY MANAGEMENT.

Each applicant must have had substantial experience of practical work in connexion with farming, gardening, the management of woodlands, or dairying and creamery management. The examination may be written, oral and practical. The subjects will include all the ordinary work of farms, gardens, woods, or dairies, as practised in Ireland.

N.B.—On no account will a scholarship be awarded to a candidate who fails to attain a high standard in the subject he selects for this portion of the examination ; while excellence in that subject will be taken into consideration in case of deficiency in one or more of the others.

E. ABILITY TO IMPART INSTRUCTION :—

Gauged by the style of the answers in both the written and the oral examinations.

Candidates who are qualified for scholarships by their examination on the foregoing subjects will be required to submit to an examination by a medical officer appointed by the Department. A scholarship will not be awarded in any case where the candidate is certified to be physically unfit to undertake the prescribed course of studies.

Last date for receiving applications, 15th August, 1908.

November, 1907.

POULTRY FATTENING INDUSTRY.

FORM A. 168 (a).

APPRENTICESHIPS.

The Department have made arrangements for the training, as apprentices to the poultry-fattening industry, of a limited number of young men who desire to become qualified for the position of poultry fatteners at fattening stations in Ireland. Apprenticeship may extend over a period of twelve months or longer according to the efficiency of the apprentice.

The apprentices will be instructed in the preparation of suitable foods, the fattening, cramming, killing, plucking and dressing of poultry for market, and the management of poultry generally. They will be required to devote their whole time to such work, including the rearing of fowl, if found necessary.

Applicants for apprenticeship must be at least twenty years of age, unmarried, in good health and of strong constitution. Preference will be given to those who have had experience in poultry-keeping.

The apprenticeships will be awarded on the result of an examination which will be held in Dublin towards the end of October, 1907. The subjects included in the examination, which will be both written and oral, will be English, Arithmetic and General Knowledge; a high standard will not be expected.

No expenses will be allowed to candidates in connection with their attendance at this examination.

Successful candidates will be called up for training as vacancies for them occur. They will receive wages at the rate of 16s. per week from the date of their commencing work, and will be required to find their own board and lodging. The engagement between apprentices and the Department may be determined at any time by one week's notice on either side.

The Department do not undertake to employ or to procure employment for apprentices on the conclusion of their training.

Applications for apprenticeships must be made on forms provided for the purpose, which can be obtained from

The Secretary,

Department of Agriculture and

Technical Instruction,

Upper Merrion-street, Dublin.

Latest date for receiving applications, 15th October, 1907.

II.—TECHNICAL INSTRUCTION.

Circular 48.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION STREET,

DUBLIN, *November, 1907.*

SIR, *or* MADAM,

In forwarding the enclosed regulations for the conduct of the Local Science and Art Examinations to be held by the Department, on behalf of the Board of Education, South Kensington, in 1908, the Department would direct attention to several important alterations which they have found it necessary to introduce in the arrangements for these examinations in the coming year.

The Department will not, in future, make special arrangements for the admission of external candidates. It will be necessary for such candidates to apply to the Secretaries to Local Technical Instruction Committees, or to the Managers of Schools where examinations in the subjects required will be held, and it will be in the power of Managers, who may thus be called upon to provide extra accommodation, to charge a fee in addition to that payable to the Department. The revised conditions are contained in Sections 6 and 7 of the Regulations.

The Regulations for the conduct of the examinations in Blackboard Drawing of the Board of Education have been revised, and are no longer applicable to Ireland, and, as a success in this subject is not now required for higher certificates in Drawing or Art, other than the Irish Secondary Teachers' Drawing Certificate, the Department have decided no longer to arrange for the holding of these examinations. They will, however, arrange for special examinations in Drawing on the Blackboard for candidates for the Irish Secondary Teachers' Drawing Certificate, to be held at Dublin, Belfast, Cork, Londonderry, Limerick, Waterford, and Galway, during the months of October and November. The examinations in Elementary Modelling, which have previously been held in April, May, and June, will also in future be held during the months of October and November. The tests in these subjects are provided only for candidates for the Irish Secondary Teachers' Drawing Certificate, and the Department will not be prepared to admit applicants who have not previously obtained at least three of the other successes required for that certificate. Applications for admission to the examinations to be conducted in October and November, 1908, must be submitted not later than the 15th September, on Form S. 117 in the case of Elementary Modelling, and on Form S. 119 in the case of Drawing on the Blackboard. Copies of these forms may be obtained, after the 15th August, from the Offices of the Department.

I am,

Sir, *or* Madam,

Your obedient Servant,

T. P. GILL,

Secretary.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION-STREET, DUBLIN.

LOCAL SCIENCE AND ART EXAMINATIONS, 1908.

Regulations for the conduct of the Local Examinations in subjects of Science and Art conducted by the Department of Agriculture and Technical Instruction for Ireland on behalf of the Board of Education (South Kensington).

1. The examinations are held in the evenings in May and June, and in the day-time in June; the dates on which the examinations in the various subjects will be held are specified in the Examination Time Table, published separately.

Candidates may not present themselves for examination in the same subject at the evening examinations and at the day examinations in the same year.

Candidates may not present themselves for examination in more than one stage, or section of a stage, of any subject in the same year except in (a) Mathematics, in which subject they may take either one stage in either of the two groups of stages into which the examination in this subject is divided, or Honours in Division I. and Division II. of Mathematics; and (b) Agricultural Science and Rural Economy, in which subject they may take the examination in one of Sections A, B, C, and one of Sections D, E, and F of Stage 2. As Stage 1 of Subject VIII. (Sound, Light, and Heat) is common to the three sub-divisions into which the subject is divided for the advanced stages, candidates who take Stage 1 are not eligible to take, in the same year, Stage 2, Stage 3, or Honours of any of the three sub-divisions of the subject. When examinations are held concurrently in several subjects on the same evening, no candidate may take more than one of the subjects.

2. Examinations in Practical Chemistry (Subjects X_p. and XI_p.), and in Practical Metallurgy (Subject XIX_p.), are held only in laboratories equipped in accordance with the requirements appended to the Board of Education's Syllabuses for these subjects. Where the number of candidates for examination working at the same time exceeds the number for which the laboratory is approved, the candidates may be examined in divisions. Not more than two such divisions will be allowed, and the number of candidates in each division working at the same time must not exceed the number for which the laboratory is approved.

Practical examinations for candidates in Honours in certain subjects may be held at South Kensington or at some other centre, in addition to a written examination. Such practical examinations will be held as early as possible in June or July. Candidates who are instructed to

attend these examinations at South Kensington or any other centre, receive a subsistence allowance of 7s. 6d. a night while required to be absent from home, and third class railway fare ; but no cab or omnibus fares are allowed.

3. The grades of success at the Examinations are "first class" "second class."

Exceptions.—(1) In Section I. of Stage 1 of Science Subjects XV. and XXIII. there is only one grade of success, viz. : "pass."

(2) In the Art subjects of Drawing and Modelling from the Life and Architectural Design there is a further grade of success, viz. : "excellent."

4. Applications for examination papers in Stage 1 of Science Subjects, and in Stage 1 of Design cannot be considered unless the application is accompanied by a sum of 1s. 6d. for each such paper asked for. For papers in Stage 1 of Practical Chemistry or Practical Metallurgy the fee will be 2s. 6d. per paper. No fee is exigible in respect of examinations in subjects of Art other than that in Stage 1 of Design.

The number of papers requisitioned cannot be subsequently varied, and no part of the remittance is returnable.

The remittance of the fee for papers in Stage 1 must be made by Bank Draft, Cheque, or Postal Order, made payable to "The Accountant, Department of Agriculture and Technical Instruction for Ireland." *Stamps cannot be accepted.*

5. Managers of Schools who wish to present candidates for the local Science and Art examinations must provide accommodation, and propose to the Department arrangements for the examination. The Department, however, reserve to themselves the right to revise the proposed arrangements, and to amalgamate the examinations in any district should they think it expedient.

6. **External candidates** (i.e., candidates who are not students of any school or class) must apply not later than the **11th March** to the Secretary to the local Technical Instruction Committee, or to the Managers of a School where examinations in the subjects required will be held. Lists of the Secretaries to local Technical Instruction Committees, and of the centres at which examinations were held in 1907, may be obtained upon application to the Offices of the Department.

7. Managers may charge external candidates a fee not exceeding 2s. 6d. for each morning, afternoon, or evening for which they register their names for examination. The admission of an external candidate to an examination in Practical Chemistry (Subject Xp. or XIp.), Practical Metallurgy (Subject XIXp), Drawing from Life, Architectural Design, or Modelling, is not obligatory, and the above-mentioned limitation to the fee will not apply in the case of admission to the examinations in these subjects. These fees are additional to the fees payable to the Department.

8. Where managers of different institutions have classes in the same subject under their control they must arrange, where possible, for a conjoint examination of these classes in such manner that an unnecessary number of rooms may not be in use.

9. A separate examination will not, as a rule, be held where the number of candidates to be presented in any one subject is less than four, but the Department will be prepared, when in such cases the school from which the candidates come is distant from any larger centre, to consider proposals for holding a separate examination at the school if special written application is made before the **29th February** in the case of the evening examinations, and the **6th April** in the case of the day examinations.

10. The accommodation provided should be as follows :—

(a.) For examinations in all subjects of Science and in all subjects of Art, except those mentioned in (b), the accommodation should be such as to allow of the candidates being seated not less than five feet apart from centre to centre. For examinations in subjects of Science it is desirable that rooms with level floors and without galleries should be used.

(b.) At examinations in the following subjects of Art:—Freehand Drawing in Outline, Model Drawing, Drawing in Light and Shade from a Cast, Drawing and Modelling from the Antique, Drawing and Modelling from Life, Modelling the Head from Life, and Painting from Still Life, candidates may be placed so as to be not less than two feet six inches apart from centre to centre.

11. Managers or their representatives must provide (for use in the examination in those subjects in which they are respectively required), ink, pens, ruled foolscap paper, paper fasteners, tracing paper, and the necessary materials, such as stands, nails, &c., required for hanging up the casts for examination purposes in Drawing in Light and Shade and Modelling from the Antique.

12. Managers of Schools presenting students for examination must apply to the Department not later than the **7th March** for Form S. 102 upon which to make a return showing the number of papers required for each subject, and such other particulars as the Department may deem necessary. The return, which must be forwarded to the Department not later than the **13th March** in the case of Evening Examinations, and not later than the **23rd April** in the case of Day Examinations, will be taken as final, and no further emendations can be allowed. Managers must state when applying for this form whether it is proposed that their students should take the evening or the day examinations.

13. The Managers will nominate on Form S. 107, certain persons prepared to superintend the examinations. The superintendents may either be voluntary superintendents, or they may be remunerated by the Managers, after notice to the Department, at a rate not exceeding **2s. 6d.** per hour of attendance necessary; the Department would not, however, approve of Managers making payments for such services to members of their own body. Candidates for examinations, their relatives, their teachers, or other persons who have a direct interest in the success of any candidate are ineligible to act as superintendents of examinations. Managers are held entirely responsible for the presence of superintendents to the number required at each examination, other wise the examination may be held to be void.

14. The examination papers and the materials supplied by the Board of Education (South Kensington) for the examinations will be forwarded to the Examination Secretary.

The packets of examination questions must not, under any circumstances, be permitted to pass into the hands of a teacher, of a candidate for examination, or of any other person interested in the success of the candidates.

If the Examination Secretary is ineligible to act as Superintendent (See Section 13 above), the Managers must appoint some other responsible person to act as custodian of Examination Papers.

15. Detailed instructions for the conduct of the examinations will be addressed to the Secretary and to the persons nominated as Superintendents.

16. The Department will issue to the Secretary, blank cards of admission to the examinations, which must be distributed amongst the candidates. A candidate who is unable to produce the card of admission, may not, except in special circumstances, be admitted to the examination room.

17. The Department may disallow examinations which afford evidence of not having been conducted in strict accordance with the regulations; they will investigate cases of suspected irregularity, and may require any or all of the candidates to be re-examined. If any candidate should fail to appear at such investigation, or decline to be re-examined, all his previous examinations may be cancelled. When an examination has failed through no fault of the candidates, a re-examination may be allowed, the cost of which may be charged to the Managers. A re-examination will not be accepted for the purposes of Scholarships, &c.

18. All possible care is taken that the Examination Papers may be forwarded in accordance with the applications, and that the results may be issued correctly, but the Department cannot undertake to rectify mistakes, nor will they be responsible for any incidental loss.

[NOTE—Copies of the Forms referred to herein may be obtained, after the 1st January, 1908, upon application to the offices of the Department.]

FORM S. 100.
Local Examinations.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION STREET, DUBLIN.

LOCAL SCIENCE AND ART EXAMINATIONS, 1908.

Regulations respecting the Admission of External Candidates to the Local Examinations in Subjects of Science and Art, conducted by the Department of Agriculture and Technical Instruction for Ireland, on behalf of the Board of Education (South Kensington).

(1.) The examinations are held in the evenings in May and June, and in the day-time in June. The dates on which the examinations

in the various subjects will be held are specified in the Examination Time Table, published separately.

(2.) Candidates may not present themselves for examination in the same subject at the Evening Examinations and at the Day Examinations in the same year. Candidates may not present themselves for examination in more than one stage, or section of a stage of any subject of Science in the same year, except in (a) Mathematics, in which subject they may take either one stage in each of the two groups of stages into which the examination in this subject is divided, or Honours in Division I. and Division II. of Mathematics, and (b) Agricultural Science and Rural Economy, in which subject they may take the examination in one of Sections A, B, and C, and one of Sections D, E, and F of Stage 2. As Stage 1 of Subject VIII. (Sound, Light, and Heat) is common to the three sub-divisions into which the subject is divided for the advanced stages, candidates who take Stage 1 are not eligible to take, in the same year, Stage 2, Stage 3, or Honours of any of the three sub-divisions of the subject. When examinations are held in several subjects of Science on the same evening, no candidate may take more than one of such subjects.

(3.) External candidates (*i.e.* candidates who are not students of any school or class), must apply not later than the **11th March** to the Secretary to the local Technical Instruction Committee, or to the Managers of a School where examinations in the subjects required will be held. Lists of the Secretaries to local Technical Instruction Committees, and of the centres at which examinations were held in 1907, may be obtained upon application to the offices of the Department.

(4.) Managers may charge external candidates a fee not exceeding 2s. 6d. for each morning, afternoon, or evening for which they register their names for examination. The admission of an external candidate to an examination in Practical Chemistry (Subject Xp. or XIp.), Practical Metallurgy (Subject XIXp), Drawing from Life, Architectural Design, or Modelling, is not obligatory, and the above-mentioned limitation to the fee will not apply in the case of admission to the examinations in these subjects. These fees are additional to the fees payable to the Department for papers in Stage I. of Science Subjects and Stage I. of Design. A sum of 1s. 6d. is charged by the Department for each such paper, except in the case of Stage I. of Practical Chemistry (Subject Xp. or XIp.), and Practical Metallurgy (Subject XIXp.) for which the fee is 2s. 6d. per paper.

(5.) External candidates must provide the materials required for examination in the particular subjects which they take, *e.g.*, Pens, Pencils, and in Art Subjects, Drawing Boards, T Squares, Instruments, Drawing Pins, Fasteners, &c.

LOCAL SCIENCE AND ART EXAMINATIONS, 1908.

EXAMINATION CENTRES.

This list of examination centres is issued for the information of students desiring to present themselves for examination as External Candidates at the Local Science and Art Examinations to be held in May and June, 1908. The list contains the names of all the schools at which these examinations were held in 1907. In all probability similar examinations will be held at the same centres in 1908, but there may not be examinations at some of these centres. On the other hand, examinations may be held at new centres, *i.e.*, centres not mentioned in this list.

The Department cannot guarantee that examinations in the subjects stated, or in any other subjects, will be held at the centres mentioned, and they cannot give any further information with regard to probable centres.

(NOTE.—F.= *Freehand Drawing in Outline*; L.= *Drawing in Light and Shade from a Cast*; M.= *Model Drawing*; G.-D.= *Geometrical Drawing (Art)*; P.= *Perspective*; P.-F.= *Memory Drawing of Plant Form*; Science Subjects are designated by the numbers given them in "*Syllabuses and Lists of Apparatus*" of the Board of Education for 1907-8.)

EVENING EXAMINATIONS.

Centre Number.	Name of Centre.	Subjects in which Examinations were held.	
		Science.	Art.
	LEINSTER.		
	Co. CARLOW—		
6247	Bagenalstown: Presentation Convent.	Subject XIV., . . .	—
6260	Carlow: Convent of Mercy, .	—	L., G.-D., and Design.
	Co. DUBLIN—		
6269	Blackrock: Dominican Convent, Sion Hill.	—	Design.
6248	Blackrock: Municipal Technical School.	Subjects II, IX., and X.	F. and M.
6262	Chapelizod: Mount Sackville Convent.	—	F., L., M., and G.-D.
6163	Kingstown: Municipal Technical School.	Subjects III, V. (Div. I.), and VIA.	F., M., G.-D., and Design.
	Co. BOROUGH OF DUBLIN:		
6143	Christian Brothers' Novitiate, Marino, Clontarf.	—	F., L., M., and Design.
6647	Church Home School, Clydesroad.	Subjects X. and XVII.	F., P.-F., and Drawing of Common Objects from Memory.

EVENING EXAMINATIONS—*continued.*

Centre Number.	Name of Centre.	Subjects in which Examinations were held.	
		Science.	Art.
	CO. BOROUGH OF DUBLIN— <i>con.</i>		
6010	City of Dublin Technical Schools.	Subjects I., II., III., V. (Div. I.), V. (Div. II.), Vp., VIA., VIIb., VII., VIII., IX., X. Xp. (Stage 1), Xp. (Stages 2 and 3), XI., XIp. (Stage 1), XXII., and XXIII.	F., L., M., G.-D., and Design.
6065	Loreto College, St. Stephen's Green.	—	Design.
6019	Metropolitan School of Art.	Subjects I. and III.,	F., L., M., G.-D., P. P.-F., Anatomy, Architecture, Design, Drawing from Life, Drawing from the Antique, Drawing of Common Objects from Memory, Drawing the Antique from Memory, Historic Ornament, Modelling Design, (Stage 2), Modelling Design (Honours), Modelling from Life, Modelling from the Antique, Modelling the Head from Life, Painting from Still Life, Painting Ornament, and Principles of Ornament.
6035	Royal College of Science.	Subjects V. (Div. I.), IX., X., Xp. (Stage 1), Xp. (Stage 2), XIV., XXII., and XXV.	—
	CO. KILDARE—		
6795	Athy: Technical School.	Subjects I. and III.,	F. and M.
6442	Naas: Technical School.	—	F., L., M., G.-D., and Design.
	CO. KILKENNY—		
6458	Goresbridge: Brigidine Convent.	—	L.
6607A	Kilkenny: Courthouse.	Subject X.,	F., L., M., G.-D., and Design.
	KING'S COUNTY—		
6509	Birr: Technical School.	—	F.
	CO. LOUTH—		
6416	Drogheda: Municipal Technical School.	Subjects I., V. (Div. I.), VII., IX., X., Xp. (Stage 1), Xp. (Stage 2), and XX.	F., L., M., and Design.
6416	Dundalk: Municipal Technical School.	Subjects I., II., III., V. (Div. I.), Vp., VIA., VIIb., VII., VIII., VIIIA., VIIIB., VIIIC., IX., X., Xp. (Stage 1), Xp. (Stage 2), and XXII.	F., L., M., G.-D., P.-F., and Design.
	CO. MEATH—		
6568	Navan: Loreto Convent.	—	Design.

Centre Number	Name of Centre.	Science.	Art.
ons were held.			
QUEEN'S COUNTY—			
6310	Abbeyleix: Brigidine Convent,	—	F., M., and Design.
6359	Mountrath: Brigidine Convent,	—	L.
CO. WESTMEATH—			
6311	Athlone: La Sainte Union Convent.	—	F. and Design.
6215	Athlone: St. Mary's Intermediate School.	—	Design.
6356	Mullingar: Loreto Convent, .	—	Design.
CO. WEXFORD—			
6249	Enniscorthy: Loreto Convent,	—	F., M., and G.-D.
6606	New Ross: Convent of Mercy,	—	F., L., M., G.-D., and Design.
6732	Newtownbarry: St. Mary's Convent.	Subjects V. (Div. I), XIV., and XXV.	Design.
6347	Wexford: Municipal Technical Institute	Subjects I., II., V th , VI th , X th , and X th (Stage I).	F., L., M., G.-D., Design, and Painting Ornament
CO. WICKLOW—			
6697	Arklow: Courthouse, . . .	Subject II., . . .	—
6697	Arklow: Marlborough Hall,	—	G. D.
6457	Bray: Technical School, . .	—	F. and M.
6702	Wicklow: Technical School, .	Subject III., . . .	F.
MUNSTER.			
CO. CLARE—			
6063	Ennis: St. Mary's School, Convent of Mercy.	—	Design.
CO. CORK—			
6603	Bandon: Technical School, .	—	F. and L.
6705	Bantry: Technical School,	Subject III., . . .	—
6012	Blackrock: Ursuline Convent,	—	Modelling from the Antique.
6676	Buttevant: Convent of Mercy,	—	G.-D.
6667	Clonakilty: Technical School,	Subject III., . . .	F., L., M., and G.-D.
6064	Dunmanway: St. Mary's School.	—	Design.
6612A	Dunmanway: St. Patrick's Town Hall.	Subject III., . . .	—
6751	Fermoy: Technical School,	Subject III., . . .	F., L., G.-D., and Design.
6659	Macroom: Technical School,	—	F., M., and G.-D.
6131	Middleton: Christian Brothers' Schools.	Subject III., . . .	F., L., G.-D., M., and Design.
6619A	Passage West: National School.	Subject II., . . .	—
6604	Queenstown: Technical School.	Subjects I., II., IV., VII., IX., and XXII	—
6759A	Ringaskiddy: National School.	Subject II., . . .	—
6742	Skibbereen: Intermediate and University School.	Subject III., . . .	F., L., M., and G.-D.
6328	Youghal: Christian Brothers' Schools.	—	F., L., G.-D., and Design.
6434	Youghal: Presentation Convent.	—	F., M., G.-D., and Design.

EVENING EXAMINATIONS—continued.

Centre Number.	Name of Centre.	Subjects in which Examinations were held.	
		Science.	Art.
	CO. BOROUGH OF DUBLIN—		
6013	Christian Brothers' Schools, Our Lady's Mount.	—	F., L., G.-D., and Design.
6003	Crawford Municipal Technical Institute.	Subjects I., II., III., IV., Vp., VII., VIII., IX., X., Xp. (Stage 1.), Xp. (Stage 2), XIp. (Stage 3), XVII., and XXII.	F., L., M., G.-D., P., P.-F., Anatomy, Design, Drawing from Life, Drawing from the Antique, Historic Ornament, Modelling Design (Stage 2), Modelling from the Antique, Painting from Still Life, and Principles of Ornament.
6057	St. Aloysius' School, St. Marie's of the Isle.	—	G.-D.
	CO. KERRY—		
6678	Listowel: Technical School.	Subject III., . . .	—
6317	Listowel: St. Michael's College.	—	F. and G.-D.
6571	Trillick: Central Technical School.	Subjects I., II., and III.	F., L., and G.-D.
	CO. BOROUGH OF LIMERICK—		
6039B	Athenaeum Hall, Cecil-street.	Subjects I., III., and XVIII.	F., G.-D., and P.
6039	Municipal Science, Art, and Technical School, 69 George-street, Limerick.	Subjects II., Vp., VIA., VII., VIII., IX., X., Xp. (Stage 1.), Xp. (Stage 2), XI., XIIp. (Stage 1), and XXV.	L., M., P.-F., and Design.
	CO. TIPPERARY—		
6147	Cashel: Presentation Convent.	—	F., L., M., G.-D., P.-F., Design, and Painting from Still Life.
6556	Clonmel: Central Technical School.	—	F., L., M., G.-D., P., P.-F., and Design.
6229	Nenagh: Christian Brothers' School.	—	F., G.-D., and Design.
6396	Kilcrea: Technical School.	Subject V. (Divn. I.).	—
6391	Templemore: Convent of Mercy.	—	F.
6148	Thurles: Presentation Convent.	—	G.-D. and Design.
6069	Thurles: Ursuline Convent.	Subjects V. (Div. I.), VII. and IX.	F.
6685	Tipperary: Technical School.	Subject III., . . .	—
	CO. WATERFORD—		
6214	Dungarvan: Christian Brothers' Schools.	Subject III., . . .	F., L., M., G.-D., P.-F., and Design.
6204	Lismore: Christian Brothers' Schools.	—	F., L., M., G.-D., P.-F., and Design.
6810A	Tramore: Palace Rooms.	—	F. and M.
	CO. BOROUGH OF WATERFORD.		
6118	Christian Brothers' Schools, Mount Slon.	—	F., L., M., G.-D., and Design.
6084	Convent of the Sacred Heart of Mary, Ferrybank.	Subject V. (Div. I.).	F., M., and G.-D.
6477	Central Technical Institute.	Subjects I., II., III., V. (Div. I.), Vp., VIII., X., and XXVI.	F., L., M., G.-D., P., P.-F., and Painting from Still Life.
6100	St. Anne's High School, Ursuline Convent.	—	L.

EVENING EXAMINATIONS—continued.

Centre Number.	Name of Centre.	Subjects in which Examinations were held.	
		Science.	Art
	ULSTER.		
	CO. ANTRIM—		
6358	Ballymena: Municipal Technical School.	Subjects I., II., III., V. (Div. I.), V. (Div. II.), Vp., VII., VIII., VIIIa, VIIIb, VIIIc, IX., X., Xp. (Stage 1), and XXII.	F., L., M., G.-D., P.-F., Design, and Painting from Still Life.
6244	Ballymoney: Intermediate School.	Subject V. (Div. I.).	F. and G.-D.
6545	Carrickfergus: Technical School.	Subject III.	F., M., and G.-D.
6232A	Larne: Female National School.	Subjects V. (Divn. I.), VII., IX., and X.	—
6232B	Larne: Free Library.	Subjects II., and III.	F., L., M., and Design.
6199	Larne: Grammar School.	Subjects X., Xp. (Stage 1), and Xp. (Stage 2).	—
6114	Lisburn: Ulster Provincial School.	Subjects V. (Divn. I.), X. and Xp. (Stage 1).	M.
	CO. BOROUGH OF BELFAST—		
6885	Christian Brothers' Schools, Hardinge-street.	Subject Vp.	F. and G.-D.
6080	Belfast: Christian Brothers' Schools, St. Mary's.	—	F., L., M., G.-D., and Design.
6184	Belfast: Girls' Collegiate School, Mount Prospect.	Subjects V. (Divn. I.), XIV., and XXV.	F. and M.
6227	Municipal Technical Institute, College Square, North.	Subjects I., II., III., IV., V. (Divn. I.), V. (Divn. II.), Vp., VIa., VIIb., VII., VIII., VIIIc., IX., X., Xp. (Stage 1), Xp. (Stages 2 and 3), XI., XIp. (Stages 1 and 2), XII., XIII., XIV., XVII., XXII., XXIII., and XXV.	F., L., M., G.-D., P., P.-F., Anatomy, Architecture, Architectural Design, Design, Drawing of Common Objects from Memory, Drawing from Life, Drawing from the Antique, Drawing the Antique from Memory, Historic Ornament, Modelling Design (Stage 2), Modelling Design (Honours), Modelling from Life, Modelling from the Antique, Painting from Still Life, Painting Ornament, and Principles of Ornament.
6071	Victoria College.	—	F.
	CO. ARMAGH—		
6397	Armagh: Municipal Technical School.	Subject III.	F.
6088	Armagh: Natural History and Philosophical Society's New Art Rooms, The Mall.	—	F., L., M., and Design.
6433	Lurgan: Convent of Our Lady of Mercy.	—	F., L., M., G.-D., and Design.
6367	Lurgan: Municipal Technical School.	Subjects VIII. and IX.	F., L., M., P.-F., Design, and Painting Ornament.
6574	Portadown: Municipal Technical School.	Subjects V. (Divn. I.), Vp., and VII.	F. and M.

EVENING EXAMINATIONS—*continued.*

Centre Number.	Name of Centre.	Subjects in which Examinations were held.	
		Science.	Art.
CO. DONEGAL—			
6273	Letterkenny : Loreto Convent.	—	F., M., G.-D., P., and Drawing of Common Objects from Memory.
CO. DOWN—			
6582	Banbridge : Technical School.	Subjects V., (Divn. I.), and X.	F., M., and G.-D.
6587	Bangor : Technical School.	Subjects III. and V. (Divn. I.)	F., L., M., and G.-D.
6544	Newry : Municipal Technical School.	Subjects I., III., V. (Divn. I.), Vp., VIA., IX., X., Xp. (Stage 1), XXIII., and XXV.	F., L., M., G.-D., P.-F., Design, and Painting from Still Life.
6645	Newtownards : Technical School	Subjects II. and III.	F. and M.
6748A	Warrenpoint : Town Hall.	—	F., and G.-D.
CO. LONDONDERRY—			
6235	Coleraine : Technical School.	Subjects II., V. (Divn. I.), Vp., VIA., VIB., VIIc., VIIIC., IX., and XXII.	F., L., and Design.
CO. BOROUGH OF LONDON-DERRY.			
6549	Londonderry : Convent of Mercy.	—	M. and G.-D.
6037	Municipal Technical School.	Subjects I., II., III., V. (Divn. I.), Vp., VIA., VIB., VII., IX., and XXII.	F., L., M., G.-D., P., P.-F., Anatomy, Architecture, Design, Drawing from the Antique, Historic Ornament, Painting from Still Life, Painting Ornament, and Principles of Ornament.
CO. MONAGHAN—			
6223	Carrickmacross : St. Louis Convent.	—	F., L., M., G.-D., and Design.
CO. TYRONE—			
6701A	Cookstown : Courthouse.	—	F., M., and Design.
6701	Cookstown : Technical Rooms, Union-street.	Subject III.	—
6581	Dungannon : Technical School.	Subjects III., VIA., VIII., and X.	F., M., G.-D., and Design.
6211	Omagh : Loreto Convent.	—	L. and Design.
6707	Omagh : Urban Council Rooms.	Subject III.	F., L., M., G.-D., P.-F., and Design.
6708A	Strabane : Bridge End School.	Subject III.	F., M., and Design.
CONNAUGHT.			
CO. GALWAY—			
6066	City of Galway Technical Institute.	Subjects I., III., V. (Divn. I.), VIIIC., VIIIC., IX., X., Xp. (Stage 1), Xp. (Stage 2), XI., XXIII., and XXVI.	F., L., M., G.-D., and Design.
6067	Galway : Dominican Convent, Taylor's Hill.	Subjects V. (Divn. I.), X., XIV., and XXV.	F., L., M., G.-D., and Design.
CO. MAYO—			
6278	Westport : Christian Brothers' Schools.	—	F. and Design.
CO. SLIGO—			
6765	Sligo : Municipal Technical School.	Subjects I., II., III., V. (Divn. I.), V. (Divn. II.), Vp., VIA., VIB., XIV., XXIII., and XXV.	F., L., M., G.-D., and Design.

DAY EXAMINATIONS.

Centre Number.	Name of Centre.	Subjects in which Examinations were held.	
		Science.	Art.
	LEINSTER.		
	CO. CARLOW—		
6356	Tullogh : Brigidine Convent, .	Subject XIV. . .	F., L., M., and G.-D.
	CO. DUBLIN—		
6269	Blackrock : Dominican Convent, Sion Hill.	—	L.
6096	Rathfarnham : Loreto Abbey.	—	L., M., and G.-D.
	CO. BOROUGH OF DUBLIN—		
6143	Christian Brothers' Novitiate, Marino, Clontarf.	—	F. M., and G.-D.
6647	Church Home School, Clydesroad.	—	M.
	CO. KILKENNY—		
6458	Goresbridge : Brigidine Convent.	—	M.
6268	Kilkenny : Loreto Convent, .	—	F., L., M., and G.-D.
	CO. LOUTH—		
6120	Drogheda : Sienna Convent,	—	F., M., and G.-D.
	CO. MEATH—		
6568	Navan : Loreto Abbey, .	—	L.
	QUEEN'S COUNTY—		
6310	Abbeyleix : Brigidine Convent.	—	L.
	CO. WESTMEATH—		
6636	Mullingar : Loreto Convent,	—	L., M., and G.-D.
6311	Athlone : La Sainte Union Convent.	—	L.
6215	Athlone : St. Mary's Intermediate School.	—	F. and M.
	CO. WEXFORD—		
6733	Newtownbarry : St. Mary's Convent.	—	F., M., and G.-D.
	MUNSTER.		
	CO. CLARE—		
6063	Ennis : St. Mary's School, Convent of Mercy.	—	G.-D.
	CO. CORK—		
6012	Blackrock : Ursuline Convent.	—	F., L., M., G.-D., and P.

DAY EXAMINATIONS—*continued.*

Centre Number.	Name of Centre.	Subjects in which Examinations were held.	
		Science	Art.
	CO. CORK—<i>continued.</i>		
6064	Dunmanway: St. Mary's School.	—	F., L., M., and G.-D.
6616	Kinsale: Technical School, .	—	F.
6434	Youghal: Presentation Convent	—	F.
	CO. BOROUGH OF CORK—		
6003	Crawford Municipal Technical Institute.	—	F.
6067	St. Aloysius School, St. Marie's of the Isle.	—	F., L., and M.
6024	Cork: St. Vincent's Convent,	Subject V. (Divn. I.).	F. and M.
	CO. KERRY—		
6068	Tralee: Presentation Convent.	—	F. and M.
	CO. TIPPERARY—		
6666	Fethard: Presentation Convent.	—	F.
6148	Thurles: Presentation Convent.	—	F. and L.
	ULSTER.		
	CO. ANTRIM—		
6358	Ballymena: Municipal Technical School,	—	F., L., M., and G.-D.
	CO. BOROUGH OF BELFAST—		
6227	Belfast: Municipal Technical Institute.	—	P.
	CO. ARMAGH -		
6564	Armagh: Convent of the Sacred Heart.	—	F.
	CO. MONAGHAN—		
6226	Monaghan: Convent of St. Louis.	—	L.

TIME TABLE OF EVENING SCIENCE AND ART EXAMINATIONS, MAY AND JUNE, 1908.

The "Stages" or other sub-divisions of the subjects in which the examinations are held are those mentioned in the syllabuses on which the papers set at the examinations are based. These syllabuses are published in a separate volume, "Syllabuses and Lists of Apparatus" of the Board of Education, to be obtained (price 4d.) through any bookseller, or direct from E. Ponsonby, 18, Nassau-street, Dublin.

(*N.B.—In addition to these Evening Examinations, Day Examinations in certain subjects of Science and Art will be held during June, 1908. For particulars see page 355.*)

SCIENCE.

1908.

		p.m. 6 to 10	I.—PRACTICAL PLANE AND SOLID GEOMETRY. Sets of Scales (<i>see</i> Syllabus of subject) and a protractor will be required. Slide rules may be used. Tracing paper will be supplied. Mathematical Tables for the use of Candidates will be issued with the Examination papers.
2nd May,	Saturday,	7 to 10	XXIV.—AGRICULTURAL SCIENCE AND RURAL ECONOMY.—Stage 1, Stage 2 (Sections A, B and C), and Honours of Agriculture and Rural Economy and Honours of Horticulture. A separate paper will be set for each of the Sections A, B, and C; a candidate will be allowed to take only one paper.
4th	Monday,	7 to 10	VI.—THEORETICAL MECHANICS.—(a) SOLIDS. Stage 1, Stage 2 and Stage 3. Compasses, a scale of equal parts, a protractor, and drawing instruments will be required.
5th	Tuesday,	7 to 10	VII.—APPLIED MECHANICS. Drawing boards and instruments will be required by Candidates in Stage 2, Stage 3, and Honours. Slide rules may be used. Mathematical Tables for the use of Candidates will be issued with the Examination papers. XIV.—HUMAN PHYSIOLOGY. A microscope will be required by Candidates in Stage 3,
6th	Wednesday,	7 to 10	XVIII.—PRINCIPLES OF MINING. XXI.—SPHERICAL AND NAUTICAL ASTRONOMY, Stage 1 and Stage 2. Drawing Instruments, Mathematical Tables <i>without any treatise</i> , and the Nautical Almanac for the current year will be required

1908.

p.m.

SCIENCE.

			VI.—THEORETICAL MECHANICS. — (b) FLUIDS, including Honours in Solids and Fluids. Compasses, a scale of equal parts, a protractor, and drawing instru- ments will be required.
7th May,	Thursday,	7 to 10	XX.—NAVIGATION, Stage 1, Stage 2; and Stage 3 and Honours in NAVI- GATION AND SPHERICAL AND NAUTICAL ASTRONOMY. Mathematical Tables <i>without any treatise</i> and, in the case of Candi- dates for Stage 3 and Honours of the combined subjects, the Nautical Almanac for the current year will be required.
			XII.—GEOLOGY.
8th	Friday,	7 to 10	VIIIc.—HEAT, Stage 2, Stage 3, and Honours.
			XVI.—ZOOLOGY. A microscope may be required by Candidates in Stage 3.
		6 to 10	III.—BUILDING CONSTRUCTION AND DRAWING. Drawing Instruments, &c. (<i>see</i> Syllabus of subject) and Indian Ink will be required. Slide Rules, Scales, and Protractors may be used. Tracing paper will be sup- plied. Mathematical Tables for the use of Candidates in Stage 3 and Honours will be issued with the Examination papers.
9th	Saturday,	6 to 9	XV.—GENERAL BIOLOGY, Stage 1 (Sec. I. and Sec. II.) and Stage 2.
			XIX.—THEORETICAL METALLURGY, in- cluding the written examina- tion in Honours of Metallurgy.
11th	Monday,	7 to 10	XXIV.—AGRICULTURAL SCIENCE AND RURAL ECONOMY, Stage 2 (Sections D, E and F). A separate paper will be set for each of the Sections D, E and F; a can- didate will be allowed to take only one paper.
12th	Tuesday,	7 to 10.30	V.—MATHEMATICS, Stages 1, 2, 3, 4; and Honours in Division I.
13th	Wednesday,	7 to 10	VIIIb.—LIGHT, Stage 2, Stage 3, and Honours.
14th	Thursday,	7 to 10	IX.—MAGNETISM AND ELECTRICITY.
15th	Friday,	7 to 10	VIII.—SOUND, LIGHT, AND HEAT, Stage 1. VIIIa.—SOUND, Stage 2, Stage 3, and Honours.

1908.

p.m.

SCIENCE.

16th May, Saturday,	6 to 10	{	II.—MACHINE CONSTRUCTION AND DRAWING. Indian Ink, and Scales (<i>see</i> Syllabus of subject) will be required. Slide Rules may be used. Tracing paper will be supplied. Mathematical Tables for the use of Candidates in Stage 3 and Honours will be issued with the Examination papers.
			IV.—NAVAL ARCHITECTURE. Scales, set squares and ship curves will be required (<i>see</i> Syllabus of subject). Slide Rules may be used. Tracing paper will be supplied. Mathematical Tables for the use of Candidates, will be issued with the Examination papers.
18th „ Monday,	7 to 10	{	X.—THEORETICAL INORGANIC CHEMISTRY, including Honours of Organic and Inorganic Chemistry.
			+XXVI.—ELEMENTARY SCIENCE OF COMMON LIFE (CHEMISTRY).
19th „ Tuesday,	7 to 10	{	XI.—THEORETICAL ORGANIC CHEMISTRY Stage 1, Stage 2, and Stage 3.
			XXII.—HEAT ENGINES. Slide Rules may be used. Mathematical Tables for the use of Candidates, will be issued with the Examination papers.
20th „ Wednesday	7 to 10	{	V.—MATHEMATICS, Stages 5, 6, 7, and Honours in Division II.
			XXV.—HYGIENE.
21st „ Thursday,	2 to 10.30	{	XI _p .—PRACTICAL ORGANIC CHEMISTRY :
			Stage 1, — { Written, 6 to 7 p.m. Practical, 7.15 to 9.30 p.m.
			Stage 2, — { Written, 6 to 7 p.m. Practical, 7.15 to 10.30 p.m. The use of Note-books, Text-books, or works of reference is permitted during the practical part of the examination in the laboratory.
			Stage 3, — 2.30 to 10.30 p.m. The use of Note-books, Text-books, or works of reference is permitted.
			*XIX _p .—PRACTICAL METALLURGY, Stage 3, 2 to 10 p.m. The use of Note-books, Text-books, or works of reference is permitted.

* See note (d) on page 352.

+ This subject is not divided into stages.

1908.

p.m.

SCIENCE.

p.m.

XVII.—BOTANY.

22nd May, Friday,

7 to 10

Vp.—PRACTICAL MATHEMATICS, Stage 1, Stage 2, and Stage 3.

Slide Rules may be used. Mathematical Tables for the use of Candidates will be issued with the Examination papers.

23rd „ Saturday, 2.30 to 10.30

Stage 2,

— { Written, 5.15 to 6.15 p.m.
Practical, 6.30 to 10.30 p.m.

The use of Note-books, Text-books, or works of reference is permitted during the practical part of the examination in the laboratory.

Stage 3,

— 2.30 to 10.30 p.m.

The use of Note-books, Text-books, or works of reference is permitted.

25th „ Monday, 7.15 to 9.30

* Xp.—PRACTICAL INORGANIC CHEMISTRY, Stage 1.

26th „ Tuesday,

5 to 10

*XIXp.—PRACTICAL METALLURGY.

Stage 1, . . . 6 to 10 p.m.

Stage 2, . . . 5 to 10 p.m.

The use of Note-books, Text-books or works of reference is permitted.

27th „ Wednesday,

6 to 9

XIII.—MINERALOGY.

This examination will include practical blow-pipe Analysis. Apparatus, &c., will be required. (See Syllabus of Subject.)

XXIII.—PHYSIOGRAPHY, Stage 1 (Sec. I. and Sec. II.), Stage 2, and Stage 3.

Such objects as mathematical instruments, drawing boards, squares, lenses, coloured chalks, pen-knives, magnets, &c., may be used by candidates at Science Examinations, to afford them reasonable facilities in their work. (N.B.—It must be understood that all articles except pens, ink, paper, and tracing paper, to be used by candidates at either the Science or Art examinations, must be provided by the candidates themselves.)

The City and Guilds of London Institute's Examination in TECHNOLOGY, &c., will commence on Saturday, 25th April, and will continue till Friday, 10th July. For more detailed information see the Institute's Programme.

(a.) Application for the examination of a School or Class must be made in accordance with the regulations set forth in Form S. 125.

(b.) External Candidate (*i.e.*, candidates who are not students of any School or Class) must apply to the Secretary to the local Technical Instruction Committee, or to the managers of a School where Examinations in the subjects required will be held. See Form S. 100.

*See note (d) on page 352.

(c.) Candidates may not present themselves for examination in the same subject at the same time as in any of the other subjects for examination in the same year. Candidates may, however, present themselves for examination in more than one subject in the same year, except in (a) *Mathematics*, in which they may take either one stage in each of the two groups of stages into which the examination in this subject is divided, or Honours in Division I. and Division II., and (b) *Agricultural Science and Rural Economy*, in which subject they may take the examination in one of Sections A, B, and C, and one of Sections D, E, and F, of Stage 2. As Stage 1 of Subject VIII. is common to the three sub-divisions into which the subject is divided for Stage 2, Stage 3, and Honours, candidates are not eligible to take, in the same year, Stage 1, and also Stage 2, Stage 3, or Honours of any of the three sub-divisions of the subject.

(d.) Examinations in Practical Chemistry and Practical Metallurgy are held only in laboratories equipped in accordance with the Department's requirements. The examinations in Stage 2 of Practical Inorganic Chemistry, and in Stage 1 and Stage 2 of Practical Organic Chemistry, will consist of two parts, viz., a written examination and a practical examination to be held as above.

In laboratories where the Department have sanctioned the practical examination in two divisions, the times for the first division will be as follows:—Inorganic Chemistry, Stage 1, 3.30 to 5.45 p.m.; Stage 2, 1 to 5 p.m. Organic Chemistry, Stage 1, 3.30 to 5.45 p.m.; Stage 2, 2.30 to 5.45 p.m. The practical examination for the second division in the respective stages, and in the case of Stage 2 of *Xp.* and Stages 1 and 2 of *Xlp.*, the written examination for both divisions will be held at the times stated in the Time Table above.

In Practical Metallurgy there will be, for all stages, a practical examination only. Where the Department have sanctioned the examination in Stage 2, or Stage 1 in two divisions, the examination of the first division will be held from 10 a.m. to 3 p.m. for Stage 2, and from 1 to 5 p.m. for Stage 1. The examination for the second division will be held at the times stated in the Time Table above.

(e.) In Science subjects (*see* Syllabuses) in which Honours includes both a written and a practical examination, the examination papers to be set on the above dates will include the questions for the written (Paper 1) examination only. The dates of the practical examinations, which will be held at South Kensington or at some other centre, will be communicated to qualified candidates in due course afterwards. The examination in Honours of Practical Chemistry will be held about June or July in London, and will extend over three or more days. The precise dates and places of examination will be subsequently announced.

ART.

1908.

2nd May, Saturday

{ 6 to 7.30 p.m.
{ 8 to 10 p.m.

GEOMETRICAL DRAWING.

PERSPECTIVE.
Mathematical instruments
required.

1908.ART.

4th	„	Monday	7 to 10 p.m.	PRINCIPLES OF ORNAMENT. Mathematical instruments may be used. Tracing paper may be supplied by superintendents to candidates, but candidates may not bring any with them.
5th May,	Tuesday		{ 10 a.m. to 4 p.m. (See Note p. 354.) 7 to 9 p.m.	PAINTING FROM STILL LIFE. DRAWING THE ANTIQUE FROM MEMORY.
6th	„	Wednesday	{ 7 to 9.30 p.m. 7 to 9 p.m.	FREEHAND DRAWING in Outline. DRAWING OF COMMON OBJECTS FROM MEMORY.
7th	„	Thursday	7 to 10 p.m.	DRAWING IN LIGHT AND SHADE from a Cast.
8th	„	Friday	7 to 9.30 p.m.	MODEL DRAWING.
9th	„	Saturday	5 hours (between 10 a.m. and 10 p.m.)	DRAWING FROM LIFE, including one hour for Drawing from Memory, and an interval of one hour between the time for collecting the drawings made from the Model, and the time for the commencement of the Drawing from Memory. (<i>The five hours must be consecutive and the same for all candidates attending at the same centre.</i>)
11th	„	Monday	6 to 10 p.m.	†DRAWING FROM THE ANTIQUE.
12th	„	Tuesday	7 to 10 p.m.	ANATOMY.
13th	„	Wednesday	6 to 10 p.m.	DESIGN, Stage 1, Stage 2, and Honours. Mathematical instruments may be used. Tracing paper may be supplied by Superintendents to Candidates, but Candidates may not bring any with them.
14th	„	Thursday	7 to 10 p.m.	HISTORIC ORNAMENT. Mathematical instruments may be used. Tracing paper may be supplied by Superintendents to Candidates, but Candidates may not bring any with them.
15th	„	Friday	6 to 10 p.m.	PAINTING ORNAMENT. Tracing paper may be supplied by Superintendents to Candidates, but Candidates may not bring any with them.
16th	„	Saturday	6 to 10 p.m.	ARCHITECTURE. Mathematical instruments may be used. Tracing paper may be supplied by Superintendents to Candidates, but Candidates may not bring any with them.

† This Examination may be taken only in schools provided with at least four full-sized figures.

1908.			ART.
18th	May, Monday	7 to 9 p.m.	MEMORY DRAWING OF PLANT FORM.
19th to 22nd and 23rd	" Tuesday to Friday and Saturday	} 6.30 to 10 p.m. (Each evening.)	* MODELLING FROM THE ANTIQUE.
		8 hours. (See Note below.)	For Candidates to CAST THEIR CLAY MODELS.
21st and 22nd or 23rd	" Thursday and Friday or Saturday	} 8 hours. (See Note below.)	* MODELLING THE HEAD FROM LIFE. For Candidates to CAST THEIR CLAY MODELS.
25th to 27th	" Monday to Wednesday	} 4 to 10 p.m. (Each Evening). (See Note below.)	ARCHITECTURAL DESIGN. Mathematical instruments required.
28th and 29th and 30th	" Thursday and Friday and Saturday	} 6.30 to 10 p.m. (Each evening.)	* MODELLING DESIGN (Stage 2.) For Candidates to CAST THEIR CLAY MODELS.
1st June, to 5th and 6th	Monday to Friday and Saturday	} 6.30 to 10 p.m. (Each evening.)	* MODELLING FROM LIFE. For Candidates to CAST THEIR CLAY MODELS.
15th to 18th and 19th or 20th	" Monday to Thursday and Friday or Saturday.	} 6.30 to 10 p.m. (Each evening.)	* MODELLING DESIGN. (Honours). For Candidates to CAST THEIR CLAY MODELS.
		8 hours. (See Note below.)	

* These Modelling Examinations are limited to Candidates who are prepared to make Casts of their Models. Candidates are required to cast their Clay Models on the specified dates (see Time Table above), and must provide their own modelling tools. Superintendents of Examinations will provide clay for modelling, and plaster for casting.

Note.—On the 5th, 25th, 26th, and 27th May, the six hours include half an hour for refreshment. On the 5th May the half-hour must be taken by all candidates from 1 to 1.30 p.m. On the other dates the half-hour each evening must be taken by all candidates from 7 to 7.30 p.m.

The eight hours for Casting on the 22nd, 23rd, and 30th May, and the 6th, 19th, or 20th June, must be the same for all candidates attending at the same centre, and may be taken on those dates as convenient in accordance with the notification of the time which is to be sent to the Department. The Department will consider applications to substitute other dates for the Casting at any particular centre, provided such exceptional circumstances can be shown to exist as to justify such substitution.

For general explanatory notes, see page 351.

TIME TABLE OF DAY EXAMINATIONS IN SCIENCE AND IN ART, JUNE, 1908.

These Examinations are confined to the Subjects and Stages specified. They do not include Papers in Stage 3 (except in Mathematics) or Honours, and marks gained in them do not count in the Competition for Royal Exhibitions, National Scholarships, Local Scholarships, or Free Studentships; or for Whitworth Scholarships and Exhibitions.

(N.B.—The Time Table of the Evening Examinations in May and June, 1908, is given at page 348 *et seq.*)

NOTICE.—Should the Board of Education find that after 1908 the purposes at present served by the Day Series of Examinations in Science and in Art will be sufficiently provided for otherwise, these Examinations, or such of them as appear to be no longer necessary, will then be discontinued.

1908.

Monday, 15th June.	10 a.m. to 1 p.m.	ART.	DRAWING IN LIGHT AND SHADE from a Cast.
	2 to 5 p.m.	SCIENCE. Subject XXIV.	AGRICULTURAL SCIENCE AND RURAL ECONOMY. Stage 2, Sections A, B, and C.
			[A separate paper will be set for each of the Sections A, B, and C; a Candidate will be allowed to take only one paper.]
Tuesday, 16th June.	10 a.m. to 12.30 p.m.	ART.	MODEL DRAWING.
	2 to 4.30 p.m.	"	FREEHAND DRAWING in Outline.
	10 to 11.30 a.m.	"	GEOMETRICAL DRAWING. Mathematical instruments will be required.
	12 to 2 p.m.	"	PERSPECTIVE. Mathematical instruments will be required.
Wednesday, 17th June.	10 a.m. to 2 p.m.	SCIENCE. Subject I.	PRACTICAL PLANE AND SOLID GEOMETRY, Stage 1 and Stage 2.
			Sets of scales (<i>see</i> Syllabus of subject) and a protractor will be required. Slide rules may be used. Tracing paper will be supplied. Mathematical Tables for the use of Candidates will be issued with the examination papers.
	3 to 6 p.m.	" " XXIV.	AGRICULTURAL SCIENCE AND RURAL ECONOMY. Stage 2, Sections D, E, and F.
			[A separate paper will be set for each of the Sections D, E, and F; a Candidate will be allowed to take only one paper.]

1908.

Thursday, 18th June.	10 a.m. to 1 p.m.	SCIENCE. Subject	VIII.	SOUND, LIGHT, AND HEAT, Stage 1.
	2 to 5 p.m.		VIIIa.	SOUND, Stage 2.
			VI.	THEORETICAL MECHANICS —(a) SOLIDS, Stage 1 and Stage 2. Compasses, a scale of equal parts, and a pro- tractor will be required.
Friday, 19th June.	10 a.m. to 1 p.m.	"	VIIIc.	HEAT, Stage 2.
	2 to 5 p.m.		IX.	MAGNETISM AND ELECTRI- CITY, Stage 1 and Stage 2.
Saturday, 20th June.	10 a.m. to 1 p.m.	"	VI.	THEORETICAL MECHANICS —(b) FLUIDS, Stage 1 and Stage 2. Compasses, a scale of equal parts, and a pro- tractor will be re- quired.
	2 to 5 p.m.		{ VIIIb. XXV.	LIGHT, Stage 2. HYGIENE, Stage 1 and Stage 2.
Monday, 22nd June.	10 a.m. to 1 p.m.	"	X.	THEORETICAL INORGANIC CHEMISTRY, Stage 1 and Stage 2.
	2 to 5 p.m.		{ XXVI. XIV. V.	ELEMENTARY SCIENCE OF COMMON LIFE (Chemis- try). HUMAN PHYSIOLOGY, Stage 1 and Stage 2. MATHEMATICS, Stages 5, 6, and 7.
Tuesday, 23rd June.	10 a.m. to 12.15 p.m.	"	Xp.	*PRACTICAL INORGANIC CHEMISTRY, Stage 1.
	2 to 5 p.m.		V.	MATHEMATICS, Stages 1, 2, 3, and 4.
Wednesday, 24th June.	10 a.m. to 1 p.m.	"	XVII.	BOTANY, Stage 1 and Stage 2.
	2 to 5 p.m.		XXIII.	PHYSIOGRAPHY, Stage 1 (Sec. I. and Sec. II.), and Stage 2.
Thursday, 25th June.	9.15 a.m. to 2.30 p.m.	"	Xp.	*PRACTICAL INORGANIC CHEMISTRY, Stage 2. (Practical, 9.15 a.m. to 1.15 p.m.; Written, 1.30 to 2.30 p.m.). The use of note-books, text-books, or works of reference is permitted during the practical part of the examina- tion in the laboratory.

* See note (d) on page 357.

Such objects as mathematical instruments, drawing boards, squares, lenses, coloured chalks, pen-knives, magnets, &c., may be used by Candidates at Science Examinations to afford them reasonable facilities in their work. (N.B.—It must be understood that all articles, except pens, ink, paper, and tracing paper to be used by the Candidates at either the Science or the Art Examinations, must be provided by the Candidates themselves.)

(a.) Application for the examination of a School or Class must be made in accordance with the regulations set forth in Form S. 125.

(b.) External Candidates (*i.e.*, Candidates who are not students of any school or class) must apply to the Secretary to the local Technical Instruction Committee, or to the managers of a School where Examinations in the subjects required will be held. See Form S. 100.

(c.) Candidates may not present themselves for examination in the same subject at the Evening Examinations and at the Day Examinations in the same year.

Candidates may not present themselves for examination in more than one stage, or section of a stage, of any subject of Science in the same year, except in (a) Mathematics, in which subject they may take one stage in each of the two groups of stages into which the examination in this subject is divided, and (b) Agricultural Science and Rural Economy, in which subject they may take the examination in one of Sections A, B, and C, and one of Sections D, E, and F, of Stage 2.

As Stage 1 of Subject VIII. is common to the three sub-divisions into which the subject is divided for Stage 2, Candidates are not eligible to take in the same year Stage 1 and also Stage 2 of any of the three sub-divisions of the Subject.

(d.) Examinations in Practical Inorganic Chemistry are held only in Laboratories equipped in accordance with the Department's requirements. In Stage 1 a practical examination only is held. In Stage 2 the examination consists of two parts, *viz.*, a practical examination and a written examination, which will be held as above. In Laboratories where the Department have sanctioned the practical examination in two divisions, the second division in Stage 2 will be examined from 2.45 to 6.45 p.m., and in Stage 1 from 2.15 to 4.30 p.m. The practical examination for the first division, in the respective stages, and in the case of Stage 2 the written examination for both divisions, will be held at the times stated in the Time Table above.

FORM S. 176.

Local Scholarship Examinations.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION-STREET, DUBLIN.

LOCAL SCHOLARSHIP EXAMINATIONS, 1908.

The following arrangements are proposed to be made by the Department for the conduct of examinations in connection with the award in 1908, of Scholarships to be granted under schemes of technical instruction in operation in Counties and Urban Districts in Ireland.

The examinations are conducted free of charge to Committees; the Department undertake the preparation of examination papers and the revision of answers; and they issue lists of candidates in order of merit to the Committees concerned.

The Department will not be prepared to hold any examinations for Scholarships, in 1908, other than those enumerated below.

Committees will be required to find Superintendents for the examinations, and to arrange for suitable accommodation.

I.

FOR SCHOLARSHIPS TENABLE AT DAY SECONDARY SCHOOLS.

On June 27th.—This examination will be suitable for the award of County and Urban District Scholarships tenable at approved Day Secondary Schools.

The subjects and time of examination will be:—

Arithmetic,	.	.	11 a.m. to 12.30 p.m.
English,	.	.	1 p.m. to 2.15 p.m.
Drawing,	.	.	2.30 p.m. to 3.30 p.m.

II.

FOR SCHOLARSHIPS TENABLE AT TRADES PREPARATORY SCHOOLS.

On June 25th.—This examination will be suitable for the award of Scholarships tenable at, and for entrance qualification to, Day Trades Preparatory Schools, working under the Department's Regulations.

The subject and time of examination will be:—

English	.	.	10 a.m. to 12 noon.
Arithmetic,	.	.	12.30 p.m. to 2.30 p.m.
Drawing,	.	.	2.45 p.m. to 4 p.m.

III.

FOR SCHOLARSHIPS TENABLE AT RESIDENTIAL SCHOOLS OF DOMESTIC ECONOMY.

On June 25th.—This examination has been arranged for the convenience of those Committees which have decided that such Scholarships shall be awarded as the result of a competitive examination. It will be suitable for the award of Scholarships tenable at, and for entrance qualification to, such Residential Schools of Domestic Economy as are working under the Department's Regulations.

The subjects and time of examination will be:—

Arithmetic,	.	.	.	10.30 a.m. to 12.30 p.m.
English (including	General	Knowledge),	.	1 p.m. to 3 p.m.
Drawing,	.	.	.	3.10 p.m. to 4.10 p.m.

SYLLABUSES OF EXAMINATIONS.

The Syllabuses are the same for each of the examinations mentioned but a higher standard of work will be looked for in the Trades Preparatory School Scholarship and Entrance Examination than in the other examinations.

Candidates may be examined on any part of these Syllabuses.

Arithmetic :

The principles of Vulgar and Decimal Fractions, with examples involving addition, subtraction, and multiplication.
 Proportion, Simple Interest, Practice, Unitary Method.
 The Metric System.
 Methods of Weighing and Measurement.
 Measurement of lengths, areas, and volumes.

English :

Composition. A short essay, or letter, of thirty or forty lines—
 with correct spelling, grammar, and punctuation—on some familiar subject.
 Ability to answer in fully formed sentences questions on the meaning of words and phrases, and on the matter of a passage read.
 Grammar. The construction of words ; prefixes, affixes, and roots.
 Analysis of simple and complex sentences.
 Correction of faulty sentences.
 Paraphrasing a short poetical extract.

General Knowledge : (For Domestic Economy Scholarship Examinations.)

Questions on familiar subjects which a pupil would be expected to be acquainted with from home or school life, and from general observation and reading.

Drawing :

1. Freehand Drawing.
2. Simple exercises in Design.
3. Model Drawing of Simple Common Objects.
4. Simple Geometrical Drawing.

Form S. 31.

DEPARTMENT OF AGRICULTURE AND
 TECHNICAL INSTRUCTION FOR IRELAND,
 UPPER MERRION-STREET, DUBLIN.

SPECIAL EXAMINATION FOR TEACHERS' QUALIFICATIONS IN MANUAL TRAINING (WOODWORK), 1908.

A special examination for Teachers' qualifications in Manual Training (Woodwork) will be held in Dublin on Tuesday and Wednesday, 23rd and 24th June, 1908. The subjects and Time Table of the examination will be :—

TUESDAY, JUNE 23RD,	10 a.m. to 1.30 p.m.	Drawing.
" "	2.15 to 5.15 p.m.	Theory.
WEDNESDAY, JUNE 24TH	9.30 a.m. to 1 p.m.	Drawing on the Black board, and Demonstration Exercise.
" "	2 to 5 p.m.	Practical Woodwork Test.

For Syllabuses of the subjects of Examination see Circular Letter, No. 24.

Tools, wood, paper, pens, and ink will be provided by the Department, but candidates will be required to bring mathematical instruments, drawing boards (imperial size), pencils, erasers, etc., for the examination in drawing; and, although tools for the Practical Woodwork Test will be provided by the Department, candidates are advised to bring their own, as no allowance can be made should the candidate not consider the tools supplied as satisfactory.

Applicants for admission to the examination must be twenty-one years of age on or before the 1st January preceding the examination.

Application for admission to the examination must be made, on Form S 32, before the 1st MAY.

No fee will be charged for this examination, but candidates will be required to defray all travelling and other expenses incurred by them.

Form S. 33.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION-STREET, DUBLIN.

ROYAL COLLEGE OF SCIENCE, DUBLIN.

SCIENCE AND TECHNOLOGICAL SCHOLARSHIPS, 1908.

A limited number of Scholarships and of Teacherships-in-Training, tenable at the Royal College of Science, Dublin, will be offered for competition among Students of Science and Technology in 1908.

The Scholarships are of the value of £50, per annum, and, in addition, entitle the holder to free instruction during the Associate Course, and third-class railway fare for one journey each session to and from Dublin.

A Teachership-in-Training entitles the holder to free instruction during the Associate Course, a maintenance allowance of 21s. per week for the session of about forty weeks each year, and third-class railway fare for one journey each session to and from Dublin.

Candidates awarded Teacherships-in-Training will be required to enter into an undertaking that they will pursue the full Associate Course, with a view to becoming Teachers of Science in Ireland, and that, in the event of their leaving the College before obtaining the Diploma of Associateship, they will refund to the Department the sums paid to them as maintenance allowances and expenses of travelling.

The Associate Course extends over three years, and the College Session lasts from the beginning of October until the end of June each year.

Holders of Scholarships and Teacherships-in-Training will be required to devote their whole time to the work of the Associate Course, to comply with the regulations of the College, and to pass the examinations required for the Associateship. The continuance of the Scholarship or Teachership-in-Training for a second or a third session will depend upon the ability and application which the Student has shown during the previous session or sessions at the College.

Candidates for Scholarships and Teacherships-in-Training must be not less than sixteen or more than thirty years of age on the 1st June, 1908. Holders of Royal Exhibitions or National Scholarships, and present or past Students of the Royal College of Science, are ineligible as candidates.

Candidates must have been born in Ireland, or have been resident in Ireland for three years prior to the 1st June, 1908.

Candidates will have to satisfy the Department as to their knowledge of English and of one other language (Greek, Latin, Irish, French, or German). In these subjects a pass in the Senior Grade of the Intermediate Education Board's Examinations, in the First Arts Examination of the Royal University of Ireland, or the equivalent of these, will be accepted as satisfactory. Those candidates who cannot thus satisfy the Department as to their knowledge of the qualifying subjects will be examined on the Pass Courses for the Senior Grade of the Intermediate Education Board's Examinations of 1908.

The competition will be confined to Mathematics, Experimental Science, and Drawing.

The Syllabus in Mathematics will be the Pass Courses in Arithmetic, Geometry, Algebra and Trigonometry for the Senior Grade of the Intermediate Education Board's Examinations of 1908.

In Experimental Science, candidates will be allowed the choice of one of the following subjects of the Special Courses of Experimental Science of the Department's Programme for Day Secondary Schools:—Physics, Chemistry, Mechanical Science, Botany, Physiology and Hygiene. The examination may, however, include any of the work of the Two Year Preliminary Course.

The Syllabus in Drawing will be the First and Second Year Syllabuses of the Programme for Day Secondary Schools.

The examination will be held in Dublin on the days and at the hours shown below:—

Tuesday, 30th June.—English, 10 a.m.—1 p.m.; Greek, Latin, Irish, French, or German, 2 p.m.—5 p.m.

Wednesday, 12th July.—Mathematics, 10 a.m.—1 p.m.; Experimental Science (Written Examination), 2 p.m.—5 p.m.

Thursday, 2nd July.—Experimental Science (Practical Examination), 10 a.m., 1 p.m.; Drawing, 2 p.m.—5 10 p.m.

Candidates must themselves bear any expenses incurred by them in connection with attendance at the examination.

Scholarships or Teacherships-in-Training will not be awarded to candidates who do not show in the course of the examination that they are capable of taking full advantage of the instruction provided at the Royal College of Science. Candidates with physical defect of voice, sight, or hearing, will not be regarded as eligible for Teacherships-in Training.

Successful candidates will be required to furnish a Medical Certificate of Health, an authenticated copy of Certificate of Birth, and satisfactory testimonials from two responsible persons.

NOTE.—Text Books other than those referred to in the Syllabuses, are not prescribed for the examinations.

The Department reserve the right at any time to determine without notice, a Scholarship or Teachership-in-Training, upon being satisfied that its continuance is for any reason undesirable.

The decision of the Department in all questions arising in connection with the Scholarships and Teacherships-in-Training shall be final.

The Department do not undertake to employ Teachers, nor to find employment for them, at the close of the period of training.

Applications for admission to the examination must be made, not later than the 30th April, on Form S, 34, copies of which may be obtained, after the 1st February, 1908, upon application to the Secretary, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion Street, Dublin, or to the Registrar, Royal College of Science, St. Stephen's Green, East, Dublin.

Applications received after the 30th April will be too late for consideration. Applications for forms are not regarded as applications for admission to the examination. Only those candidates who present an official acceptance of the Form of Application will be admitted to the Examination Room.

Form S. 206.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION-STREET, DUBLIN.

TEST FOR ENTRANCE TO THE PREPARATORY COURSE IN TECHNICAL SCHOOLS, 1907.

To enable Committees and Teachers to give the certificate required under Section I. (2) of the Department's Programme for Technical Schools and Science and Art Schools and Classes, it may be necessary to require many of the students attending the Preparatory Course in Technical Schools to submit to a test examination. In order to facilitate the arrangements for such examinations, and to indicate to Committees and Teachers the nature and extent of the test which is thought desirable, the Department have prepared papers, supplies of which will be sent on application.

In cases in which it is proposed that the Department's entrance test should be availed of, the examinations will be held on Friday, 18th October. The subjects and time-table of the examination will be :—

English, 7.30 to 8.45 p.m.
Arithmetic, 8.45 to 10 p.m.

Applications for supplies of the examination papers must be forwarded so as to reach the offices of the Department not later than Wednesday, the 16th instant; the papers will be despatched so as to reach the person named as Custodian of Papers on the morning of the day of the examination.

The Committee will be required to provide answer books and other materials required for the examination, and to arrange for the marking of the answer books. It will be necessary, however, to retain the revised answer books for twelve months after the date of the examination, in order that they may be available if required for inspection by officers of the Department.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION-STREET, DUBLIN.

MEMORANDUM.

FORMS OF TIME TABLES AND REGISTERS FURNISHED BY THE
DEPARTMENT.

A.—*TIME TABLES.*

- I. Form S. 44.—For Classes in Experimental Science and Drawing, Manual Instruction, and Domestic Economy conducted under the provisions of the Regulations for Day Secondary Schools.
- II. Form S. 50.—For Classes conducted under Sections I. and II. of the Regulations for Technical Schools and Science and Art Schools and Classes.
- III. Form S. 53.—For Schools of Art conducted under Section V. of the Regulations for Technical Schools and Science and Art Schools and Classes.
- IV. Form S. 54.—For Teachers' Classes conducted under Section VI. of the Regulations for Technical Schools and Science and Art Schools and Classes.
- V. Form S. 258.—For Day Schools for Apprentices conducted under Section IV. of the Regulations for Technical Schools and Science and Art Schools and Classes.
- VI. Form S. 95.—For Short Courses of Instruction conducted by Itinerant Instructors.
- VII. Form S. 47.—For Classes in Technical Subjects, other than short courses conducted by Itinerant Instructors **NOT** eligible for attendance grants under any of the Department's Regulations.
- VIII. Form S. 148.—For Classes in Residential Schools of Domestic Training.
- IX. Form S. 49.—For Drawing and Manual Instruction in Day Primary Schools. See Circular Letter (No. 3).

B.—*REGISTERS.*

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|----|---|--|
| 1. | $\left\{ \begin{array}{l} \text{S. 10. - Experimental Science,} \\ \text{S. 11. - Drawing,} \\ \text{S. 12. - Manual Instruction,} \\ \text{S. 13. - Domestic Economy,} \end{array} \right\}$ | For Classes in Day
Secondary Schools. |
|----|---|--|

II.	<div style="display: inline-block; vertical-align: middle;"> <div style="font-size: 4em; vertical-align: middle; line-height: 1;">{</div> <div style="display: inline-block; vertical-align: middle;"> S. 23. - Preparatory Course, S. 24. - Specialised Courses. </div> </div>	<div style="display: inline-block; vertical-align: middle;"> <div style="font-size: 4em; vertical-align: middle; line-height: 1;">{</div> <div style="display: inline-block; vertical-align: middle;"> For Classes conducted under Sections I. & II. of the Regula- tions for Technical Schools and Science and Art Schools and Classes. </div> </div>
III.	S. 20. -	For Classes in Technical Subjects NOT eligible for grants under any of the Department's Regulations.
IV.	S. 22. -	For Classes in Industrial Subjects not eligible for grants under any of the Department's Regulations.
V.	S. 21. -	For Short Courses of Instruction conducted by Itinerant Instructors.
VI.	S. 28. -	For Classes conducted under Section IV., V., and VI. of the Regulations for Technical Schools and Science and Art Schools and Classes, and for Residential Schools of Domestic Training.

NOTE.—Registers are forwarded upon the receipt in the Offices of the Department of the forms referred to in Section A.

III.—SALE OF FOOD AND DRUGS.

Circular to Local Authorities in Ireland under the Sale of Food and Drugs Acts, 1875 to 1907.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION-STREET,
DUBLIN, 4th December, 1907.

No. 31202.—07.

BUTTER AND MARGARINE ACT, 1907.

SIR,

The Department of Agriculture and Technical Instruction for Ireland desire to draw the special attention of your Local Authority to the following provisions of the Butter and Margarine Act, 1907 (copy enclosed), which comes into operation on the 1st January, 1908, and is to be construed as one with the Sale of Food and Drugs Act, 1899.

BUTTER FACTORIES.

Section 1 of the new Act makes provision for the registration with Local Authorities of all premises in which by way of trade butter is blended or re-worked.

If your Local Authority have any reason to believe that butter is being blended or re-worked in any unregistered premises, the Department request that the matter may be reported to them.

Section 1 (3) provides that premises which form part of or communicate, otherwise than by a public street or road, with premises where margarine, margarine cheese, or mixtures of butter with milk or cream are manufactured or dealt in wholesale, shall not be used as a butter factory, and it will be the duty of Local Authorities to refuse to register such premises as butter factories. The circumstances of any such cases should be reported to the Department. But if any such premises were, on the 1st January, 1907, being used as a butter factory, and formed part of or communicated with premises then registered under the Sale of Food and Drugs Acts, the application for registration should be forwarded to the Department.

If in the course of sampling under the Sale of Food and Drugs Acts the officers of your Local Authority find that butter is being retailed in their district which contains more than 16 per cent. of water and which, they have reason to believe, has come from a butter factory, the Department would be obliged if, in addition to any legal proceedings that may be taken, a detailed report of the facts were furnished to them. The limit of water permissible in butter which has not been treated in a butter factory remains unaffected by the Act. When the proportion of water in such butter is found to exceed 16 per cent., a presumption is raised that the butter is not genuine.

Under section 2 (2) an officer of a Local Authority who is empowered to procure samples under the Sale of Food and Drugs Acts may, *if specially authorised by the Local Authority*, enter registered butter factories for the purposes of inspection and sampling. Section 2 (4) requires the production of such special authority on demand by or on behalf of the occupier of the premises.

The presence in butter factories of substances intended to be used as adulterants constitutes an offence under section 3.

MARGARINE.

An amended definition of margarine is contained in section 13.

Section 8 regulates the use of names in connection with margarine on wrappers, packages, labels, advertisements, and invoices. Every such name must include the word "margarine" printed in the same colour and in type as large as, or larger than, the rest of the name. All cases in which this provision is not complied with should be reported to the Department.

Margarine, when prepared for sale or consignment, or when imported, must not contain more than 16 per cent of water, (see sections 4 (1) and 5 (1) (f) of the Act). In any case in which the Local Authority find that margarine containing more than 16 per cent. of water is being sold in their district, it is desirable that they should, if possible, ascertain the name and address of the trader from whom the retailer procured the margarine, and inform the Department.

Section 12 includes "Inspectors of Weights and Measures" among the officers entitled to procure samples under section 8 of the Margarine Act, 1887.

BUTTER BLENDED WITH MILK OR CREAM.

The Act also regulates the trade in mixtures of butter with milk or cream (*see* especially section 1, sub-sections (1) (b) and (2); section 4, sub-section (2); and section 9). If there is any reason to suspect that any unregistered premises are being used for the manufacture of, or wholesale dealing in, such mixtures the circumstances should be reported to the Department.

Under section 4 (2) it will be illegal for any person to manufacture, sell, expose, or offer for sale or have in his possession for the purpose of sale any mixture of butter with milk or cream, if such mixture contains more than 24 per cent. of water. The Department will communicate to you from time to time any name and description approved by them for use in connection with any such mixture which shall not be sold or described as butter or milk-blended butter. If a sample of such a mixture taken in your district is found to contain more than 24 per cent. of water the Department would be obliged if in addition to taking proceedings against the retailer of the article, the circumstances were immediately reported to them.

Additional copies of this circular will be forwarded to you on application.

Further copies of the new Act can be obtained either directly or through any bookseller from E. Ponsonby, 18, Nassau-street, Dublin.

I am,

Sir,

Your obedient Servant,

T. P. GILL,

Secretary.

To

The Secretary of each County Council

and the Town Clerk of each Borough.

NOTES AND MEMORANDA.

A meeting of the Agricultural Board was held at the Office of the Department, Upper Merrion-street, Dublin, on **Meetings of the Boards:** Wednesday, the 18th December. The following were present :—Mr. T. W. Russell, M.P., Vice-President of the Department (in the chair) ; **The Agricultural Board.** Mr. Alexander L. Clark, J.P. ; Very Reverend James Daly, D.D. ; Mr. Robert Downes, J.P. ; Colonel N. T. Everard, H.M.L. ; Sir Josslyn Gore-Booth, Bart., D.L. ; His Grace the Most Reverend John Healy, D.D., Lord Archbishop of Tuam ; Most Reverend Denis Kelly, D.D., Lord Bishop of Ross ; Mr. William M'Donald, J.P. ; the Right Hon. Lord Monteagle, K.P., D.L. ; Mr. H. de F. Montgomery, D.L. ; Mr. P. J. O'Neill, J.P. ; and Mr. Alexander Robb, J.P.

Mr. T. P. Gill, Secretary of the Department ; Professor J. R. Campbell, Assistant Secretary in respect of Agriculture ; Mr. R. Cantrell, I.S.O., Chief Clerk ; Mr. W. G. S. Adams, M.A., Superintendent of the Statistics and Intelligence Branch ; Mr. J. S. Gordon, B.Sc., Chief Agricultural Inspector ; Mr. J. P. Walsh, Clerk in Charge of Accounts ; Mr. J. D. Daly, M.A. (who acted as Secretary to the meeting) ; and Mr. J. V. Coyle, were also present.

The resolution adopted at the recent meeting of the Council of Agriculture, with reference to future arrangements with the Irish Agricultural Organisation Society, was under consideration and the policy in relation thereto was settled.

The following, among other matters, were also under consideration :—proposals regarding the introduction of new seed potatoes ; suggestions as to the purchase by the Department, as Trustees, of woods on estates sold under the Irish Land Act ; arrangements for exhibits of Irish produce at various centres in Great Britain, and proposals relating to inland fisheries.

A meeting of the Board of Technical Instruction was held on Wednesday, the 4th December, at the Offices of the Department, Upper Merrion-street, Dublin. The following were present:—
The Board of Technical Instruction. Mr. T. W. Russell, M.P., Vice-President of the

Department, in the Chair; Mr. James Crozier, J.P. v.s.; Mr. Christopher J. Dunn, J.P.; Mr. Thomas Edmondson J.P.; Rev. T. A. Finlay, M.A., F.R.U.I.; Mr. T. C. Harrington, M.P.; Alderman Michael Joyce, M.P.; Very Rev. P. J. Lally, P.P.; Alderman Abraham Lyon, J.P.; Mr. William Macartney, J.P.; Mr. Patrick J. Magee; Mr. W. R. J. Molloy, J.P., M.R.I.A.; Mr. Richard Sisk; and Mr. Alexander Taylor.

Mr. T. P. Gill, Secretary of the Department; Mr. George Fletcher, Assistant Secretary in respect of Technical Instruction; Mr. W. Vickers Dixon, Senior Inspector for Technical Instruction; Mr. J. D. Daly, M.A., (who acted as Secretary to the meeting); and Mr. A. Kelly were also present.

Technical Instruction Schemes in respect of the Session 1907–8, for the following urban and county areas (which were not ready for submission at the last meeting of the Board), were considered:—

Urban Districts—Banbridge, Rathmines and Rathgar, Warrenpoint.

Counties.—Armagh, Cavan, Leitrim (in substitution for the scheme already sanctioned).

The schemes having been discussed and approved, the Board concurred in the application of grants in aid thereof from the funds of the Department.

The following among other matters, were also under consideration:—the Galway Urban District Scheme of Technical Instruction; proposals regarding instruction in Navigation in Technical Schools; courses of extension lectures; instruction in Cookery, &c., to the pupils in the higher standards of National Schools.

The Consultative Committee of Education, met on Friday, 15th November, 1907, at the Offices of the

The Consultative Committee of Education. Department, Upper Merrion-street, Dublin. Present:—Mr. T. W. Russell, M.P., Vice-President of the Department, Chairman; Rev.

T. A. Finlay, M.A., F.R.U.I.; Dr. W. J. M. Starkie; Mr. W. R. J. Molloy, M.R.I.A.; and Mr. T. P. Gill.

Mr. George Fletcher, F.G.S., Assistant Secretary in respect of Technical Instruction, was also present. Mr. J. D. Daly acted as Secretary to the Meeting.

A conference between representatives of the Board of National Education and of the Department of Agriculture and Technical Instruction, on the subject of School Gardens in connection with National Schools, was held at Tyrone House, Marlborough Street, on Tuesday, 17th December, 1907. There were present :—

Conference :
School Gardens
in connection with
National Schools. Mr. W. J. M. Starkie, M.A. Litt. D., Resident Commissioner of National Education ; Rev. Henry Evans, D.D. ; Most Rev. Patrick Foley, D.D., Lord Bishop of Kildare and Leighlin ; Lieut.-General Sir William F. Butler, G.C.B. ; Mr. W. J. Dilworth, (Secretary).—*Representing the Commissioners of National Education.*

Mr. T. W. Russell, M.P., Vice-President, Department of Agriculture, &c. ; Mr T. P. Gill ; Professor J. R. Campbell, B.Sc. ; Mr. George Fletcher, F.G.S. ; and Mr. J. D. Daly, M.A. — *Representing the Department of Agriculture and Technical Instruction.*

For some time past several County Councils and other public bodies in Ireland have been considering the question of devising some means to enable the smaller farmers to cope with the heavy losses which they suffer from time to time owing to disease or accident among their live stock. There is, unfortunately, good reason for believing that these losses are to no small extent due to the absence of veterinary advice, or to delay in obtaining it ; and accordingly any arrangement that could be made by which the smaller farmers would be placed in a position to secure veterinary advice at fees commensurate with their means would be of great benefit to them.

Veterinary
Dispensaries.
Interesting
Experiment in
Wexford.

The Wexford County Committee of Agriculture have agreed upon a scheme, which they are about to put into operation for twelve months as an experiment. They propose to establish, with the aid of the County Council and the Department of Agriculture, a number of veterinary dispensaries at different centres in the county, at which veterinary surgeons will attend on certain days each week for the treatment of diseased animals. Farms will be visited by the surgeons with the object of treating cases which cannot be dealt with at the dispensaries. A scale of fees has been fixed based on the valuation of the stockowners' holdings. The experiment is a very interesting one, and

may lead to others on the same or different lines. In Continental countries farmers seek to compass a similar object by forming a co-operative society, which deals with the insurance of their live stock and at the same time pays a veterinary surgeon, who gives his services to the members of the society at low fees.

The fifth of this season's Competitions took place on the 24th October, 1907. One hundred and twenty-eight

Surprise Butter creameries entered for the Competitions during **Competitions, 1907.** the year. The judges at this competition were two in number, being representative butter merchants of Limerick and Reading. Prizes were awarded to the undermentioned competitors:—Springfield Co-operative Agricultural and Dairy Society, Enniskillen; Drumholm Co-operative Agricultural and Dairy Society, Bridgetown; Leekpatrick Co-operative Agricultural and Dairy Society, Strabane; Abbeydorney Co-operative Dairy Society, Abbeydorney; Bailieborough Co-operative Agricultural and Dairy Society, Bailieborough; Fivemiletown and Brookeboro' Co-operative Agricultural and Dairy Society, Fivemiletown.

A special additional prize of 10s. was awarded in each instance to the dairymaid or actual maker of an exhibit obtaining a first class prize.

One hundred and twenty-eight creameries participated in the **Surprise Butter** surprise Butter Competitions conducted by the Department in 1907. Five competitions were held during the year, particulars of which are set forth in the following table:—

Telegrams Issued.	Exhibits Judged.	Number of Entries.	Number of Prizes awarded.	
			First Class. £2	Second Class £1
7th May, 1907,	15th May, 1907,	95	4	9
26th June, 1907,	3rd July, 1907,	122	4	11
6th August, 1907,	13th August, 1907,	116	5	11
4th October, 1907,	10th October, 1907,	29	3	3
16th October, 1907,	24th October, 1907,	32	3	3

The following creameries obtained prizes at three of the competitions:—Clones C. A. and D. S., Drumholm C. A. and D. S. (3*), Kiltoghert C. A. and D. S. (2), Springfield C. A. and D. S. (2).

* The figures in brackets after the names of creameries indicate the number of First Class Prizes obtained by such creameries.

The following obtained prizes at two of the competitions :—Bailieboro' C. A. and D. S., Bunkay Bridge C. W. S. Finn Valley C. A. and D. S., Fivemiletown and Brookeboro' C. A. and D. S. (1), Irvinestown C. A. and D. S., Scottish C. W. S. (Enniskillen) (2).

The following obtained a prize at one of the competitions :—Abbeydorney C. D. S., Ahoghill C. A. and D. S., Ballinahinch C. W. S., Ballinamore C. A. and D. S., Ballinard C. A. and D. S. (1), Ballyduag C. A. and D. S., Belleek C. A. and D. S., Beltrim C. A. and D. S. (1), Callan C. A. and D. S., Centenary Co-operative Creamery Co. (1), Crossmaglen C. A. and D. S., Derrygonnelly C. D. S. (1), Devon Road C. W. S., Doons C. A. and D. S., Drumbane C. A. and D. S., Duneane C. A. and D. S. (1), Eflin C. A. and D. S. (1), Glenwilliam C. D. S., Granard C. D. S., Grantstown C. W. S., Greencastle C. A. and D. S., Killumney Co-operative Creamery Co., Kinawley C. A. and D. S. Kinlough C. A. and D. S. (1), Leekpatrick C. A. and D. S. (1), Lixnaw C. W. S., Mohill C. A. and D. S., Muckalee C. A. and D. S., Newmarket Creamery (Newmarket Dairy Co.), Omagh C. A. and D. S., Ramelton C. A. and D. S. (1), Tamnaskenny C. D. S.

In addition to the prizes above referred to, a sum of 10s. was awarded in each case to the dairymaid or actual maker of an exhibit obtaining a first-class prize.

The judges at the competitions included representatives of the principal buyers of Irish butter in Great Britain, as well as in Belfast, Cork, Dublin, and Limerick.

A high standard, based on the quality of the best butter sold in the markets of Ireland and Great Britain, was adopted in judging.

On the occasion of each of the competitions a limited number of the managers of the competing creameries were admitted to view the exhibits, after the judging had been completed. The judges directed the attention of the managers to any pronounced defects which had been noticed, and subsequently the exhibits were examined in detail by the managers, under the direction of one of the Department's Inspectors.

The reports furnished to the Department by the judges indicate a general improvement in the quality of the exhibits as compared with previous years, and reflect great credit on the makers. The uniformity in flavour, texture, colour, and packing is favourably commented on by the judges, and in a great number of cases the exhibits left little to be desired. A few of the exhibits are described as "off" or "rank" in flavour, but the majority were clean and sweet. Improvement in this respect is largely

dependent on the measure of success attending the efforts of the managers to obtain clean supplies of milk, and to keep the creamery and its surroundings in a thoroughly clean condition. Nearly all defects in flavour have their origin in dirt gaining access to the milk, cream, or butter, prior to or during the course of manufacture. In several instances attention was directed to the imperfect texture of the butter, the butter being described as "weak," "spongy," or "loose" in texture—a defect which not only assists in reducing its keeping properties, but also results in a loss in weight when the butter is cut up on the counter. Customers appear to require a firm, close, and waxy butter, and these characteristics can be obtained only by proprietors and managers of creameries paying increased attention to the provision of adequate cooling facilities for both cream and butter at the creamery. There were no complaints of mould on the butter or packages, which may have been due to the cooler weather which prevailed during the past season, or, as it is hoped, to greater care in the selection and preparation of packages. There were very few complaints of "streaky" or "mottled" butter, due to the imperfect admixture of the salt with the butter. The adoption to an increased extent of packages of uniform dimensions called forth strong expressions of approval on the part of the judges, who intimated the hope that in future closer attention to details will be given by the managers in order that the improvement in this respect manifested during the year may be continued. Some of the judges, however, referred in strong terms to the flavouring of the exterior of the butter by the wood, and strongly urged the general adoption of paraffin waxing of all packages to remedy this defect, it being noticed that the butter in packages properly prepared in this respect was free from the taint.

As the cost and labour incurred in preparing the boxes in this way is infinitesimal compared with the depreciation in value of the produce packed in untreated boxes, it is hoped that managers will make the practice of paraffin-waxing boxes general. The advice of the Instructor in Dairying should be sought in the matter. With a view to finding an alternative wood which would not flavour the exterior of the butter the Department obtained a number of boxes constructed of a timber which was variously described as "whitewood," "cottonwood," "whitewood, otherwise poplar." The boxes were filled with butter at a number of creameries, and then called up with the other exhibits to one of the Surprise Butter Competitions for examination by the judges. The latter reported that "with an odd exception, in which the flavour

imparted to the butter was almost imperceptible, the surface of the butter was entirely free from any taint of the wood, showing a very decided improvement over the other packages in this respect, excepting those which had been coated with paraffin wax." The boxes were retained for a further period of a month, and were again examined, when the surface of the butter was found to have no appreciable flavour of the wood. Although singularly free from resin, the wood contained traces of this objectionable matter, indicating that it was fir or pine of some variety. The wood was also rather knotty and very roughly planed. Managers have thus the alternative of paraffin-waxing boxes constructed of the wood in general use at present or of purchasing boxes constructed of timber which will not impart a taint to the surface of the butter.

When the butter was stripped the parchment came off in a perfectly clean manner in many cases, but in others a quantity of butter adhered to the parchment, making the block of butter unsightly and involving some loss. This fault is due to lack of care in preparing the package or the parchment before filling, and may be avoided by placing the parchment in a saturated solution of boiling brine overnight, and by scalding the package over a steam jet till hot, and then treating the interior with paraffin wax or salt "slush," the excess of the salt being merely brushed and not rinsed off. The thin coating of paraffin wax, which should not be perceptible, or the small quantity of salt left on the surface of the wood tends to prevent the moisture evaporating from the surface of the butter, thus keeping the parchment paper damp and preventing it drying and adhering to the butter. The attention of the butter-makers should be directed to this point in order that the defect may be remedied.

According to a recent Consular Report (No. 3948, Annual Series), the North Sea fishing fleet was increased by 50 vessels last year, and the tonnage and crews have increased also. The entire fleet was composed as follows:—

— —			Number.	Capacity.	Crew.
				Tons.	
Steam Vessels,	...	...	118	16,854	1,220
Sailing "	...	...	1,199	17,655	10,227
Motor Boats, ...	...	...	3	124	28
Total,	...	...	1,320	34,633	11,475

The herring season last year was considered to be successful, the catch amounting to 745,000 casks compared with 600,000 casks in the preceding year.

Some herrings are caught in the Zuyder Zee, but the finest come from the vicinity of the British and Scotch coasts. The distance from British waters to the Dutch ports being considerable, it is necessary to salt the fish immediately after it is caught. The process of salting on board the fishing boats is said to preserve the delicacy of the fish, and to make it superior to that which is salted on shore.

733 vessels were employed in the herring fishery during 1906.

The Netherlands imported 8,000 tons of herrings in 1906, and exported 90,000 tons.

The total yield of the sea and river fisheries during 1906 is estimated at about £1,628,000. This is below the correct figure, however as the prices realised for oysters and other shell-fish are not given. The details of the yield are made up as follows :—

				Value.
Sea—				£
Herrings,	...	...	...	988,000
Trawl Fishing,	...	...	...	370,000
Zuyder Zee fishing,	...	...	...	111,000
Cod,	...	...	...	80,000
Total,	...	...	...	1,549,000
River—				
Scheldt fishing,	...	...	...	26,000
Salmon and shad,	...	...	...	53,000
Total,	...	...	...	79,000
Grand Total,	...	...	...	1,628,000

Ymuiden is the principal fishing port of North Holland. A considerable fleet of steam trawlers makes this port its headquarters. A large fish market has been erected on the fishing-boat harbour, and a railroad connects the market with Amsterdam and the Continent. The greater part of the fish that enters Ymuiden is sent by rail from there to Germany, and it is, perhaps, for this reason that fish is an expensive article of diet at Amsterdam.

3,926 steam and 6,728 sailing vessels arrived in 1906, of which 3,529 were steam trawlers, 241 steam liners, and 32 steam drifters.

The above figures also include 39 British steam trawlers and 97 British sailing fishing boats.

The British steamers realised altogether £5,833 and the sailing vessels £1,583 for their catches.

The total weight of fish (fresh) landed here was 29,500 tons in 1906 and 23,000 tons in 1905.

STATISTICAL TABLES

FISHERY STATISTICS—

STATEMENT of the Total QUANTITY and VALUE of the FISH returned
compared with the

	North Coast.				East Coast.			
	1907.		1906.		1907.		1906.	
	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.
	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
Brill, . . . . .	.	.	.	.	17	27	44	64
Soles,	12	60	5	22	93	367	127	406
Turbot, . . . . .	.	.	.	.	22	74	31	98
Total Prime Fish, . . .	12	60	5	22	132	468	202	568
Cod,	35	18	122	79	645	751	734	638
Conger Eel,	11	4	.	.	579	322	430	300
Haddock,	252	90	21	11	524	718	541	614
Hake, . . . . .	.	.	.	.	431	712	416	670
Herrings,	2,706	1,424	4,282	2,774	4,861	1,634	4,958	1,493
Ling, . . . . .	.	.	.	.	518	322	683	566
Mackerel,	26	2	.	.	286	78	92	37
Plaice,	103	93	156	130	1,678	2,096	1,441	1,424
Ray or Skate,	108	54	33	8	576	211	706	271
Sprats, . . . . .	.	.	.	.	.	.	.	.
Whiting,	8	4	3	1	534	571	523	466
All other except Shell Fish, .	385	110	22	15	689	327	2,649	1,308
Total,	3,646	1,859	4,644	3,040	11,453	8,210	13,375	8,355
SHELL FISH :—	No.		No.		No.		No.	
Crabs,	7,800	16	72	1	4,290	13	6,210	45
Lobsters,	10,584	268	876	31	1,413	56	1,571	70
Mussels,	Cwts.	.	Cwts.	.	Cwts. 112	11	Cwts. 148	9
Oysters,	No.	.	No.	.	No.	.	No.	.
Other Shell Fish,	Cwts.	.	Cwts.	.	Cwts. 55	33	Cwts. 530	270
Total, . . . . .	.	284	.	32	.	113	.	394
Total Value of Fish landed, .	.	2,143	.	3,072	.	8,323	.	8,749

NOTE.—The above figures are subject to

IRELAND.

as landed on the IRISH COASTS during the month of October, 1907,
corresponding period in 1906.

South Coast.				West Coast.				Total.			
1907.		1906.		1907.		1906.		1907.		1906.	
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
9	19	5	9	5	8	16	42	31	54	65	115
39	208	27	105	92	297	50	134	236	932	209	717
8	29	6	23	37	131	20	98	67	234	57	219
56	256	38	137	134	436	86	324	334	1,220	331	1,051
10	18	21	21	3	4	.	.	693	791	877	738
4	1	16	5	1	1	61	15	595	328	507	320
97	50	44	29	705	343	125	78	1,578	1,201	731	732
43	31	207	216	167	72	151	71	641	815	774	957
2,225	861	11,164	2,999	24,327	4,852	6,388	2,008	34,119	8,771	26,792	9,274
7	5	19	24	9	9	4	2	534	336	706	592
2,649	969	829	165	1,193	521	795	268	4,154	1,570	1,716	470
181	225	155	180	220	220	139	117	2,182	2,634	1,891	1,851
6	1	19	4	341	62	327	32	1,031	328	1,085	315
102	42	141	41	.	.	.	.	102	42	141	41
105	25	155	42	376	150	127	57	1,023	750	808	566
440	190	281	141	277	154	545	226	1,791	781	3,497	1,690
5,925	2,674	13,089	4,004	27,763	6,824	8,748	3,198	48,777	19,567	39,856	18,597
No.	.	No.	.	No.	.	No.	.	No.	.	No.	.
.	.	.	.	80	1	105	1	12,170	30	6,387	47
522	20	1,644	89	3,115	258	4,629	164	20,634	602	8,720	354
Cwts.	.	Cwts.	201	180	12	178	14	292	23	527	35
No.	.	No.	7,458	No.	.	No.	.	No.	.	No.	7,458
Cwts.	218	Cwts.	262	714	122	634	110	987	179	1,426	407
.	44	.	149	.	393	.	289	.	834	.	864
.	2,718	.	4,153	.	7,217	.	3,487	.	20,401	.	19,461

A correction in Annual Returns.

FISHERY STATISTICS—

STATEMENT of the Total QUANTITY and VALUE of the FISH returned compared with the

	North Coast.				East Coast.			
	1907.		1906.		1907.		1906.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
Brill, . . . . .	.	.	.	.	13	21	44	72
Soles,	1	2	2	8	82	251	111	342
Turbot, . . . . .	.	.	.	.	39	112	38	197
Total Prime Fish, . . .	1	2	2	8	134	384	193	611
Cod,	96	71	141	95	1,163	821	778	640
Conger Eel,	5	2	11	8	538	326	337	245
Haddock,	275	120	229	111	513	502	389	493
Hake, . . . . .	.	.	.	.	302	321	356	578
Herrings,	15,518	6,169	30,401	15,271	17,780	3,686	9,592	3,214
Ling, . . . . .	.	.	.	.	427	242	524	453
Mackerel,	60	30	144	46	.	.	.	.
Plaice,	15	18	74	59	1,542	1,647	1,094	1,066
Ray or Skate,	37	9	3	1	421	124	394	257
Sprats, . . . . .	.	.	.	.	.	.	.	.
Whiting,	4	2	.	.	397	364	398	377
All other except Shell Fish, .	391	117	140	27	655	359	2,862	1,415
Total,	16,402	6,535	31,145	15,626	23,872	8,776	16,917	9,349
SHELL FISH:—	No.		No.		No.		No.	
Crabs, . . . . .	.	.	.	.	311	1	.	.
Lobsters,	96	4	24	1	570	24	239	14
Mussels,	Cwts.	.	Cwts.	.	Cwts. 142	10	Cwts. 182	9
Oysters,	No.	.	No.	.	No. 2,620	8	No.	.
Other Shell Fish,	Cwts.	.	Cwts.	.	Cwts. 34	29	Cwts. 200	107
Total, . . . . .	.	4	.	1	.	72	.	130
Total Value of Fish landed, .	.	6,539	.	15,627	.	8,848	.	9,479

NOTE.—The above figures are subject to

IRELAND.

as landed on the IRISH COASTS during the month of November, 1907, as corresponding period in 1906.

South Coast.				West Coast.				Total.			
1907.		1906.		1907.		1906.		1907.		1906.	
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
11	23	6	13	.	.	7	22	24	44	57	107
34	147	42	157	59	173	55	180	176	573	210	687
9	33	6	23	21	100	18	81	69	245	62	301
54	203	54	193	80	273	80	283	269	862	329	1,095
35	33	17	37	20	11	2	1	1,314	936	938	773
23	12	2	1	3	3	5	2	569	313	355	266
217	105	87	59	513	302	355	233	1,518	1,029	1,060	896
27	21	46	51	99	41	24	10	428	383	426	639
1,205	335	3,597	976	32,849	7,269	2,907	967	67,352	17,459	46,497	20,428
18	17	.	.	.	.	.	.	445	259	524	463
2,174	997	1,924	773	16,542	6,709	8,738	5,491	18,776	7,736	10,806	6,310
194	223	269	308	89	77	89	71	1,840	1,960	1,526	1,504
.	.	23	5	31	10	97	8	489	143	517	271
973	214	910	165	.	.	.	.	973	214	910	165
72	33	65	29	300	137	218	103	773	536	681	609
238	126	190	88	166	93	123	63	1,450	695	3,315	1,693
5,230	2,319	7,184	2,685	50,692	14,925	12,638	7,232	96,196	32,555	67,884	34,892
No.		No.		No.		No.		No.		No.	
.	.	.	.	.	.	.	.	311	1	.	.
17	1	396	20	1,844	60	1,066	40	2,527	89	1,725	75
Cwts.		Cwts.		Cwts.		Cwts.		Cwts.		Cwts.	
.	.	126	8	117	7	198	20	259	17	606	37
No.		No.		No.		No.		No.		No.	
4,321	17	8,820	26	12,852	31	29,851	47	19,593	56	38,671	73
Cwts.		Cwts.		Cwts.		Cwts.		Cwts.		Cwts.	
445	91	703	159	388	104	682	122	867	224	1,685	388
.	109	.	213	.	202	.	229	.	387	.	573
.	2,428	.	2,898	.	15,127	.	7,461	.	32,942	.	35,465

correction in Annual Returns.

FISHERY STATISTICS—

STATEMENT of the TOTAL QUANTITY and VALUE of the FISH returned as compared with the

—	North Coast.				East Coast.			
	1907.		1906.		1907.		1906.	
	Quan- tity.	Value.	Quan- tity.	Value	Quan- tity.	Value.	Quan- tity.	Value.
	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
Brill, . . . . .	.	.	.	.	63	87	58	159
Soles, . . . . .	.	.	.	.	83	287	91	373
Turbot, . . . . .	.	.	.	.	30	90	43	230
Total Prime Fish, . . .	.	.	.	.	176	461	192	762
Cod,	79	43	223	154	1,016	863	734	664
Conger Eel, . . . . .	.	.	1	1	496	307	293	244
Haddock,	293	147	160	102	506	511	335	451
Hake, . . . . .	.	.	.	.	295	390	297	486
Herrings,	1,155	480	2,697	1,488	11,891	2,719	10,332	3,628
Ling, . . . . .	.	.	.	.	287	204	495	432
Mackerel, . . . . .	.	.	.	.	.	.	.	.
Plaice, . . . . .	.	.	42	33	640	799	763	806
Ray or Skate,	2	1	.	.	416	126	277	179
Sprats, . . . . .	.	.	.	.	.	.	22	28
Whiting, . . . . .	.	.	.	.	425	419	462	416
All other except Shell Fish, .	47	32	21	4	413	278	1,243	627
Total,	1,576	703	3,144	1,782	16,561	7,080	15,435	8,722
SHELL FISH :	No.		No.		No.		No.	
Crabs, . . . . .	.	.	.	.	.	.	.	.
Lobsters, . . . . .	.	.	.	.	637	23	123	6
Mussels,	Cwts.	.	Cwts.	.	Cwts. 945	25	Cwts. 791	28
Oysters,	No.	.	No.	.	No. 788	3	No. 1,008	5
Other Shell Fish,	Cwts.	.	Cwts.	.	Cwts. 35	28	Cwts. 158	68
Total, . . . . .	.	.	.	.	.	79	.	107
Total Value of Fish landed,	.	703	.	1,782	.	7,159	.	8,829

NOTE.—The above figures are subject to

IRELAND.

landed on the IRISH COASTS during the Month of December, 1907, as corresponding period in 1906.

South Coast.				West Coast.				Total.			
1907.		1906.		1907.		1906.		1907.		1906.	
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
2	4	2	3	4	7	5	8	69	98	65	170
14	60	18	70	39	131	28	87	136	478	137	530
3	13	2	5	15	79	6	30	48	182	51	265
19	77	22	78	58	217	39	125	253	758	253	965
25	24	13	11	45	30	13	8	1,165	960	983	837
30	12	6	3	11	3	28	12	537	322	328	260
61	14	37	30	557	406	796	272	1,417	1,077	1,328	856
1	1	37	38	48	19	12	9	344	410	346	533
6,097	1,605	2,774	819	2,725	772	1,992	590	21,868	5,576	17,795	6,525
15	15	7	6	39	22	11	7	341	241	613	445
2,119	804	23,479	7,449	3,961	1,735	9,875	5,540	6,080	2,539	33,354	12,989
29	37	96	100	115	113	71	55	784	949	972	993
.	.	29	6	32	9	14	5	450	136	320	190
70	25	281	48	.	.	.	.	70	25	303	76
.	.	58	34	224	135	279	181	649	554	789	631
138	90	125	67	97	89	65	33	695	489	1,454	731
8,604	2,704	26,964	8,689	7,912	3,549	13,195	6,837	34,653	14,036	58,738	26,030
No.		No.		No.		No.		No.		No.	
.
408	17	.	.	846	32	480	12	1,891	72	603	18
Cwts.	.	Cwts.	120	Cwts.	111	Cwts.	80	Cwts.	1,056	Cwts.	991
No.	7	No.	8,568	No.	3,906	No.	26,379	No.	7,970	No.	36,955
Cwts.	359	Cwts.	697	Cwts.	415	Cwts.	495	Cwts.	839	Cwts.	1,350
.	91	.	185	.	147	.	164	.	317	.	456
.	2,795	.	8,874	.	3,696	.	7,001	.	14,353	.	26,486

correction in Annual Returns.

STATEMENT of the TOTAL QUANTITY of FISH landed on the ENGLISH and WALSH COASTS during the Month and Twelve Months ended 31st December, 1907, compared with the corresponding Periods of the Year 1906.

	December.		Twelve Months ended 31st December.	
	1907.	1906.	1907.	1906.
	QUANTITY.			
	Cwts.	Cwts.	Cwts.	Cwts.
Brill,	2,430	2,081	23,151	22,673
Soles,	4,884	5,103	62,965	68,774
Turbot,	6,316	5,693	68,650	70,595
Prime Fish not separately distinguished.	483	—	2,279	1,889
Total Prime Fish, ..	14,113	12,877	157,045	163,931
Bream,	8,936	3,836	70,152	36,728
Oatfish,	874	508	74,144	58,157
Coalfish,	14,492	11,638	200,710	151,719
Cod,	113,744	125,755	1,946,534	1,910,964
Conger Eels,	3,129	3,404	51,615	51,394
Dabs,	10,138	7,988	112,145	116,115
Dogfish,	3,133	3,963	22,477	20,542
Dory,	175	424	2,507	3,488
Flounders or Flukes,	113	148	4,513	4,619
Gurnards,	9,606	6,820	106,297	94,118
Haddock,	219,951	207,632	2,860,971	2,820,424
Hake,	27,564	13,160	782,323	558,918
Halibut,	7,827	8,622	209,878	163,975
Latchets (Tubs),	159	246	3,104	3,429
Lemon Soles,	2,118	2,153	44,819	52,460
Ling,	13,675	10,100	177,111	196,206
Megrims,	7,763	6,663	89,470	79,492
Monks (or Anglers),	2,629	2,744	31,243	39,474
Mullet (Red),	74	80	627	635
Plaice,	82,411	60,124	968,154	853,150
Pollack,	791	902	17,231	16,445
Skates and Rays,	29,031	30,531	378,039	384,953
Torsk,	1,382	955	16,053	11,823
Whiting,	25,925	22,724	257,460	276,478
Witches,	3,534	2,348	28,707	33,160
Herrings,	297,624	226,085	4,439,558	3,278,289
Mackerel,	1,088	627	419,233	281,072
Mullet (Grey),	14	129	1,132	1,238
Pleharda,	—	207	90,731	159,978
Sprats,	18,810	16,858	39,220	43,942
Whitebait,	560	552	6,079	6,458
Fish not separately distinguished,...	27,248	21,407	391,750	320,750
Total,	948,631	812,210	14,001,022	12,194,520
Shell Fish:—	No.	No.	No.	No.
Crabs,	81,551	65,754	4,676,648	4,967,147
Lobsters,	4,741	5,673	495,781	520,657
Oysters,	4,493,945	4,701,281	35,874,320	35,161,207
	Cwts.	Cwts.	Cwts.	Cwts.
Other Shell Fish,	48,352	45,882	553,329	524,957

NOTE.—The figures for 1907 are subject to correction.

STATEMENT of the TOTAL VALUE of FISH landed on the ENGLISH and WELSH COASTS during the Month and Twelve Months ended 31st December, 1907, compared with the corresponding Periods of the Year 1906.

	December.		Twelve Months ended 31st December.	
	1907.	1906.	1907.	1906.
	VALUE.			
	£	£	£	£
Brill,	6,572	6,495	71,716	68,001
Soles,	34,065	34,783	436,938	447,690
Turbot,	22,538	23,190	262,127	268,439
Prime Fish not separately distinguished.	711	—	3,303	2,662
Total Prime Fish, ...	63,886	64,468	773,983	786,792
Bream,	1,322	1,354	18,659	13,336
Oatfish,	480	274	25,146	19,871
Coalfish,	4,772	3,977	59,958	48,135
Ood,	84,971	100,763	1,223,827	1,117,486
Conger Eels,	2,786	2,891	39,164	40,285
Dabs,	7,509	6,329	86,454	88,667
Dogfish,	762	956	6,456	5,896
Dory,	197	382	2,405	3,001
Flounders or Flukes,	78	113	3,035	2,904
Gurnards,	2,675	2,358	29,872	27,605
Haddock,	139,708	136,489	1,483,482	1,405,368
Hake,	30,391	15,323	532,016	393,372
Halibut,	21,911	22,152	352,724	309,620
Latchets (Tubs),	126	165	2,095	2,199
Lemon Soles,	6,779	8,036	112,017	132,699
Ling,	8,125	6,940	102,755	117,815
Megrim,	5,974	5,676	54,681	55,520
Monks (or Anglers),	1,006	1,174	11,858	15,145
Mullet (Red),	182	225	1,745	1,674
Plaice,	89,452	78,026	952,529	945,580
Pollack,	548	659	9,579	9,683
Skates and Rays,	18,428	21,461	215,614	214,556
Torsk,	555	437	6,466	4,862
Whiting,	11,241	12,494	121,959	136,932
Witches,	3,753	3,084	32,058	37,667
Herrings,	102,891	90,988	1,125,920	1,319,186
Mackerel,	919	825	186,933	166,578
Mullet (Grey),	33	200	1,924	2,238
Pilchards,	—	55	23,141	31,550
Sprats,	4,876	3,026	9,585	9,133
Whitebait,	887	552	3,460	8,063
Fish not separately distinguished,...	11,060	8,178	198,525	167,894
Total,	628,230	600,030	7,824,975	7,641,287
Shell Fish :—				
Crabs,	1,014	875	55,908	59,658
Lobsters,	241	299	23,802	25,256
Oysters,	15,501	15,563	115,715	107,850
Other Shell Fish,	10,465	8,731	143,486	131,181
Total,	27,221	25,468	338,911	323,945
Total value of all Fish, ...	655,451	625,518	8,163,886	7,965,232

NOTE.—The figures for 1907 are subject to correction.

STATEMENT of the TOTAL QUANTITY and VALUE of the FISH returned as landed on the SCOTTISH COASTS during the Month and Twelve Months ended 31st December, 1907, compared with the corresponding periods for the Year 1906.

	December.		Twelve Months ended 31st December.	
	1907.	1906.	1907.	1906.
QUANTITY.				
	Cwts.	Cwts.	Cwts.	Cwts.
Herrings,	43,180	59,564	6,312,328	4,979,103
Sprats,	9,983	1,399	33,284	5,532
Sparlings,	35	48	259	271
Mackerel,	89	110	33,774	30,569
Cod,	44,418	34,540	698,107	752,758
Ling,	6,269	4,666	142,336	131,397
Torsk (Tusk),	522	229	10,159	11,423
Saith (Coal Fish),	8,291	6,105	138,074	114,916
Haddock,	109,479	92,002	1,192,468	1,074,486
Whiting,	14,423	12,947	141,806	147,525
Conger Eel,	581	555	17,860	15,420
Turbot,	447	229	6,449	5,702
Hallbut,	999	1,131	41,108	36,891
Lemon Soles,	1,513	2,087	33,060	32,828
Flounders, Plaice, Brill,	4,112	5,031	70,125	74,809
Skate and Rays,	4,362	3,802	89,597	97,375
Fish not separately distinguished, except Shell Fish,	11,000	10,018	118,325	114,242
Total,	259,703	234,463	9,077,203	7,625,057
Shell Fish:—				
	No.	No.	No.	No.
Crabs,	109,966	77,336	2,677,564	2,114,145
Lobsters,	54,114	45,847	725,421	825,252
Oysters,	189,510	165,346	1,020,250	387,150
	Cwts.	Cwts.	Cwts.	Cwts.
Clams,	1,415	966	7,197	7,489
Mussels,	16,767	20,216	127,016	129,522
Other Shell Fish,	2,530	2,875	44,896	45,199
VALUE.				
	£	£	£	£
Herrings,	6,221	17,912	1,815,519	1,649,163
Sprats,	2,208	467	8,602	1,994
Sparlings,	81	113	680	539
Mackerel,	54	69	9,288	9,482
Cod,	25,404	22,001	324,622	322,191
Ling,	2,159	1,841	45,978	43,802
Torsk (Tusk),	175	108	2,963	2,865
Saith (Coal Fish),	2,269	1,781	28,391	22,690
Haddock,	54,726	54,167	533,278	521,894
Whiting,	5,520	6,021	53,304	57,375
Conger Eel,	294	320	8,608	7,708
Turbot,	1,773	1,101	20,965	18,202
Hallbut,	2,516	2,359	73,344	65,793
Lemon Soles,	3,903	4,783	68,730	65,722
Flounders, Plaice, Brill,	5,224	6,217	87,609	93,206
Skate and Rays,	1,481	1,450	26,421	28,095
Fish not separately distinguished, except Shell Fish,	6,285	7,762	60,933	66,844
Total,	120,352	138,482	3,164,136	2,977,563
Shell Fish:—				
	£	£	£	£
Crabs,	514	348	13,729	12,146
Lobsters,	2,793	2,817	35,605	35,986
Oysters,	618	663	3,456	1,568
Clams,	179	138	953	1,083
Mussels,	678	1,049	6,290	7,231
Other Shell Fish,	663	851	12,717	13,170
Total,	5,445	5,896	72,649	72,164
Total Value of Fish landed,	125,797	134,178	3,241,784	3,049,727

NOTE.—The above figures are subject to correction in the Annual Returns.

STATEMENT of the TOTAL QUANTITY and VALUE of the FISH returned as landed on the IRISH COASTS during the Month and Twelve Months ended 31st December, 1907, compared with the corresponding Periods of the Year 1906.

	December.		Twelve Months ended 31st December.	
	1907.	1906.	1907.	1906.
QUANTITY.				
	Cwts.	Cwts.	Cwts.	Cwts.
Brill,	60	65	537	657
Soles,	136	137	2,473	2,431
Turbot,	48	51	666	690
Total Prime Fish,	253	253	3,676	3,778
Cod,	1,165	983	12,337	16,398
Conger Eel,	537	328	5,380	4,397
Haddock,	1,417	1,328	16,630	11,570
Hake,	344	346	4,476	6,208
Herrings,	21,868	17,795	228,069	270,005
Ling,	341	513	6,651	9,175
Mackerel,	6,080	33,354	148,576	277,555
Plaice,	784	972	18,833	16,822
Ray or Skate,	450	320	6,166	6,235
Sprats,	70	303	2,499	2,306
Whiting,	649	789	12,958	12,532
Fish not separately distinguished, except shell fish.	695	1,454	25,784	40,228
Total,	34,653	58,738	491,035	677,209
Shell Fish:—	No.	No.	No.	No.
Crabs,	—	—	293,878	212,734
Lobsters,	1,891	603	323,030	198,131
Oysters,	7,970	35,955	145,200	203,370
Mussels,	Cwts. 1,056	Cwts. 991	Cwts. 11,749	Cwts. 17,706
Other Shell Fish,	839	1,350	12,749	18,159
VALUE.				
	£	£	£	£
Brill,	98	170	971	1,293
Soles,	478	530	9,794	9,050
Turbot,	182	265	2,530	3,192
Total Prime Fish,	758	965	13,295	13,535
Cod,	960	837	9,318	11,904
Conger Eel,	322	260	3,242	3,175
Haddock,	1,077	855	9,257	8,828
Hake,	410	533	6,506	9,158
Herrings,	5,576	6,525	66,051	107,120
Ling,	241	445	4,415	7,523
Mackerel,	2,539	12,989	43,578	71,614
Plaice,	949	993	20,497	16,522
Ray or Skate,	136	190	2,354	2,875
Sprats,	25	76	499	440
Whiting,	551	631	8,862	8,970
Fish not separately distinguished, except shell fish.	489	731	12,077	21,069
Total,	14,036	26,030	200,081	282,736
Shell Fish:—				
Crabs,	—	—	1,185	1,130
Lobsters,	72	18	10,088	6,733
Oysters,	16	78	270	468
Mussels,	36	43	636	980
Other Shell Fish,	193	317	2,728	4,147
Total,	317	456	14,907	13,458
Total Value of Fish Landed,	14,353	26,486	214,938	296,194

NOTE.—The above figures are subject to correction in Annual Returns.

**AVERAGE PRICES OF CROPS, LIVE STOCK, MEAT, PROVISIONS, &c., for
the QUARTER ended 31st DECEMBER, 1907.**

PRODUCT.	PROVINCE.				IRELAND.	
	Leinster.	Munster.	Ulster.	Con-naught.	1907.	1906.
CROPS :—	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Wheat, per 112 lbs.	8 3½	7 2½	—	—	8 2½	6 4½
Oats (White), "	6 10½	6 5½	6 10½	6 1½	6 8	6 0½
" (Black), "	6 4½	5 9½	—	5 8½	5 10½	5 8½
Barley, . "	7 8	7 0½	—	—	7 1½	6 11
Potatoes, . "	4 3½	3 6	4 0½	2 11½	4 1½	3 2½
Hay (Clover), . "	3 4½	2 6½	3 4½	2 3½	3 1½	3 0½
" (Meadow), "	2 3	1 9	2 6½	1 8	2 0½	2 5½
Grass Seed—						
(Perennial Rye), "	—	—	14 1½	—	14 1½	8 6½
(Italian Rye), "	—	—	15 6½	—	15 6½	11 3½
Flax, . per 14 lbs.	—	—	6 11	—	6 11	7 1½
LIVE STOCK :—						
Store Cattle :—	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
One year old, per head,	7 15 6	7 19 1	6 5 7	7 13 3	7 10 6	7 3 9
Two years old, "	10 18 11	10 9 6	8 11 2	9 18 4	10 3 5	9 16 10
Three years old, "	13 9 9	13 19 11	12 17 1	11 15 1	12 3 9	12 2 7
Springers, "	14 18 6	13 19 0	13 5 2	14 7 5	13 18 8	13 15 0
Store Sheep :—						
Lambs, . "	1 13 4	1 12 10	0 12 5	1 10 0	1 11 4	1 13 5
One year old and over, . "	2 4 8	2 3 8	0 18 0	2 5 1	2 4 0	2 7 7
Two years old and over, . "	—	1 2 8	1 5 0	2 6 1	2 4 4	2 7 11
Store Pigs (8 to 10 weeks old), "	0 19 7	1 0 3	0 14 6	0 15 10	0 18 5	1 1 7
Fat Cattle :—						
Bullocks, . "	—	—	—	—	18 15 6	16 6 4
Heifers, . "	—	—	—	—	14 9 9	14 6 0
Cows, . "	—	—	—	—	13 18 6	15 1 8
Fat Sheep :—						
Wethers, . "	—	—	—	—	2 1 4	2 1 5
Ewes, . "	—	—	—	—	2 6 5	2 11 5
Hoggots, . "	—	—	—	—	2 10 1	2 11 8
Lambs, . "	—	—	—	—	1 10 2	—
MEAT, PROVISIONS, &c. :—	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Beef (Live), . per 112 lbs.	—	—	—	—	29 6	29 0½
" (Dead), "	—	—	—	—	51 7½	50 9½
Mutton (Live), "	—	—	—	—	35 7	37 9½
" (Dead), "	—	—	—	—	32 3½	36 2
Pork (Dead), . "	47 6½	47 8½	46 1½	45 1	47 5½	47 10
Butter (Creamery), "	114 7	115 2	—	—	115 2	111 7
" (Factory), "	93 6	93 8	—	—	93 8	93 2
" (Farmers), "	90 8	93 10	104 3	94 3	93 11	94 2
Eggs, . per 120	12 5½	11 10	—	11 4½	12 2½	11 11½
Wool, . per lb.	0 10½	0 10½	—	0 11½	0 10½	1 0½

WEEKLY AVERAGE PRICES of WHEAT, OATS, and BARLEY, per 112 lbs., computed from Market Returns of certain quantities of these Cereals supplied by Inland Revenue Officers, during the QUARTER ended 31st DECEMBER, 1907.

Returns received in the Week ended	WHEAT.		OATS.		BARLEY.	
	Average Price per 112 lbs.	Quantity.	Average Price per 112 lbs.	Quantity.	Average Price per 112 lbs.	Quantity.
	s. d.	Cwts. of 112 lbs.	s. d.	Cwts. of 112 lbs.	s. d.	Cwts. of 112 lbs.
1907.						
October 5.	8 0	3,265	5 11	21,842	7 1	21,794
" 12.	7 11½	2,560	6 0½	27,162	7 0½	14,603
" 19.	8 2	2,271	6 1	30,006	7 2½	13,163
" 26.	8 4½	2,770	6 2½	28,705	7 3	7,960
November 2.	8 5	2,047	6 3½	23,373	7 2	5,331
" 9.	8 5½	1,407	6 4½	24,585	7 2	2,416
" 16.	8 5½	1,612	6 3	21,017	6 11	1,362
" 23.	8 1½	1,041	6 3½	16,833	7 1½	1,292
" 30.	8 2½	750	6 1½	15,892	7 0½	787
December 7.	8 0½	787	6 0½	17,025	6 7½	336
" 14.	7 0	120	5 11½	11,471	7 6½	501
" 21.	7 7½	550	6 1½	8,100	6 9	231
" 28.	—	—	6 0½	4,789	—	—

AVERAGE PRICES of FAT CATTLE and FAT SHEEP, per 112 lbs., LIVE WEIGHT, sold in the DUBLIN MARKET during the QUARTER ended 31st DECEMBER, 1907, and also for the corresponding period during the ten preceding years.

DESCRIPTION.	YEAR.											
	1907.	1906.	1905.	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	
Fat Cattle,	29 6	29 0½	28 3½	29 1½	29 4½	31 5	29 11½	30 7½	30 7½	27 8½	28 1½	
Fat Sheep,	35 7	37 9½	34 6	34 11½	33 10	32 3	30 2½	32 3½	32 4½	31 5	32 7	

NUMBER of ANIMALS included in Returns furnished under the MARKETS and FAIRS (Weighing of Cattle) ACT, 1891, Sections 3 and 4, during the Quarter ended 31st DECEMBER, 1907.

FAT CATTLE.				FAT SHEEP.			
WEEK ENDED	Dublin.		Belfast.	Total Number of Cattle included in Returns.	Dublin.		Total Number of Sheep included in Returns.
	Corporation Market Authorities.	Mr. Gavin Low, Auctioneer.			Mr. John Robson, Auctioneer.	Corporation Market Authorities.		Mr. Gavin Low, Auctioneer.
	October 3, .	85	161		17	263		—	272	272
" 10, .	89	235	15	339	15	166	181
" 17, .	79	230	8	317	—	183	182
" 24, .	98	148	19	265	—	389	389
" 31, .	85	140	17	242	15	271	286
November 7, .	86	269	24	379	15	205	220
" 14, .	108	182	24	314	—	230	230
" 21, .	62	245	30	327	15	319	324
" 28, .	84	202	18	304	—	244	244
December 5, .	89	194	23	306	5	236	241
" 12, .	54	188	15	257	—	372	372
" 19, .	64	76	—	140	12	166	168
" 27, .	32	62	—	94	23	59	82
Totals, .	1,065	2,332	210	3,547	100	3,091	3,191

DISEASES OF ANIMALS IN IRELAND.

NUMBER of OUTBREAKS of SWINE-FEVER, and Number of SWINE returned as having been SLAUGHTERED in Ireland, under the Diseases of Animals Act of 1894, in the undermentioned period, by Order of the Department.

Quarter ended	SWINE-FEVER.	
	Outbreaks confirmed.	Swine Slaughtered as Diseased or as having been Exposed to Infection.
31st December, 1907.	41	711

NUMBER of OUTBREAKS reported as having taken place, and NUMBER of ANIMALS returned as having been attacked by ANTHRAX and GLANDERS in Ireland in the undermentioned period.

Quarter ended	ANTHRAX.		GLANDERS (including Farcy).		Epizootic Lymphangitis.	
	Outbreaks Reported.	Animals Attacked.	Outbreaks Reported.	Animals Attacked.	Outbreaks Reported.	Animals Attacked.
31st Dec., 1907.	1	1	1	2	—	—

NUMBER of Cases of RABIES in DOGS in IRELAND during the undermentioned period.

Quarter ended	Number of Cases.
31st December, 1907.	—

NUMBER of OUTBREAKS reported as having taken place, and NUMBER of ANIMALS returned as having been attacked by SHEEP-SCAB and PARASITIC-MANGE in Ireland in the undermentioned period.

Quarter ended	SHEEP-SCAB.		PARASITIC-MANGE.	
	Outbreaks Reported.	Sheep Attacked.	Outbreaks Reported.	Animals Attacked.
31st December, 1907.	127	1,653	10	10

Veterinary Branch,
Department of Agriculture and Technical Instruction for Ireland
Dublin.

BUTTER PRICES DURING THE QUARTER

ABSTRACTED FROM "THE GROCER," "GROCER'S REVIEW,"

Excepting 1-lb. Rolls and Farmers' Butter all quotations are the Landed Prices of the less than the landed prices in Great Britain.

COUNTRY OF ORIGIN.	Type of Package.	Place of Sale.	WEEK ENDED					
			OCTOBER					
			5th.	12th.	19th.	26th.		
IRELAND— Creamery Butter.	Kieis, kegs. or pyramid boxes.	London, ...	Per cwt. s. s. 112-116	Per cwt. s. s. 114-118	Per cwt. s. s. 116-120	per cwt. s. s. 118-124		
		Liverpool, ...	110-115	111/6-116	115-118/6	119/6-122/6		
		Bristol, ...	112-116	115-118	116-121	118-124		
		Cardiff, ...	114-116	115-118	118-120	120-122		
		Manchester, ...	112-116	114-117	116-118	120-123		
		Birmingham, ...	110-115	112-115/6	113/6-118	118-121		
		Glasgow, ...	114-115	115-116	117-118	121-122		
		Limerick, ...	—	—	—	—		
		Cork, ...	—	—	—	—		
		Belfast, ...	—	—	—	—		
		Dublin, ...	112-115	112-115	114-121/4	115-121/4		
		F. O. R., ...	116/8	116/8-121	116/8-123/8	121/4-127		
	Factories, ...	1 lb. rolls, 64 lb. boxes.	London, ...	90-100	90-100	94-104	94-108	
			Liverpool, ...	98-104	100-104	100-104	102-107	
			Bristol, ...	—	—	98	98	
			Manchester, ...	—	—	—	—	
	Farmers' Butter,	Firkins, 1st. Export Price.	Cardiff, ...	98-100	100-106	107-108	110	
			Cork, ...	90-95	90-95	90-94	94-96	
			Do. 2nd „	Cork, ...	85-86	84-86	84-85	84-88
			Do. 3rd „	Cork, ...	75-78	78-83	78	78
			Fresh, ...	Cork, ...	84-94	83-100	85-104	88-105
			—	—	—	—	—	—
	FRANCE, ...	12x2 lb. rolls, ...	London, ...	Per doz. lbs. 11-14	Per doz. lbs. 11-14	Per doz. lbs. 11/6-14/6	Per doz. lbs. 12-15	
		Paris baskets, ...	do., ...	Per cwt. 109-113	Per cwt. 109-113	Per cwt. 113-117	Per cwt. 118-122	
DENMARK AND SWEDEN.	Kieis, ...	Copenhagen Quotation, ...	100 Kr. 112/4 per = per 50 cwt. Kilos.	102 Kr. 114/7 per = per 50 cwt. Kilos.	106 Kr. 119 per = per 50 cwt. Kilos.	111 Kr. 124/8 per = per 50 cwt. Kilos.		
		Average over price, ...	—	—	—	—		
		London, ...	116-118	118-120	123-125	128-132		
		Liverpool, ...	110-122	119-123	121/6-126	125/6-130		
		Bristol, ...	—	—	—	130-133		
		Cardiff, ...	110-121	119-122	120-123	127-130		
		Manchester, ...	116-120	118-121	121-125	126-130		
		Birmingham, ...	116-121	118-122	120-123/6	127-130		
		Newcastle-on-Tyne, ...	116-118	117-119	120-122	125-127		
		Glasgow, ...	118-120	119-121	121-123	126-128		
		Leith, ...	116-118	116-119	120-122	126-127		
		Hull, ...	116-121	117-122	120-125	124-130		
		F. O. R. London, ...	121/4	123/8	128/4	134/2		
		1 lb. rolls, 10x24 lbs. boxes, ...	—	—	—	—		
		FINLAND, ...	Kieis, ...	Manchester, ...	112-116	114-117	116-120	120-127
				Liverpool, ...	113-116	114-116	118-120	123-125
				Hull, ...	114-119	115-118	116-120	119-126
				Cardiff, ...	115	115-117	117	124
—	—			—	—	—		

ENDED 31st DECEMBER, 1907.

"GROCER'S GAZETTE," AND OTHER TRADE REPORTS.

Choicest Qualities. The Nett F.O.R. Price to an Irish Creamery would be 5s. to 7s. per cwt
This figure covers freight, commission, handling, &c.

WEEK ENDED

NOVEMBER.					DECEMBER.			
2nd.	9th.	16th.	23rd.	30th.	7th.	14th.	21st.	28th.
Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.
s. s.	s. s.	s. s.	s. s.	s. s.	s. s.	s. s.	s. s.	s. s.
120-124	120-124	120-122	118-120	118-120	118-120	118-120	118-120	—
122-126	121-126	115/6-120	115/6-120	116-122	120-128	120-123	118-122	122
122-128	120-126	118-124	114-122	118-122	—	—	—	—
124-128	123-126	122-123	118-121	119-122	120-126	120-124	122-124	126
124-128	120-127	117-123	117-121	118-123	118-126	118-122	119-123	120-126
123-125/6	123-126	120-124	117/6-122	120-122/6	119/6-124/6	—	—	—
125-126	125-126	120-121	117-118	118-120	121-122	120-121	120-122	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
122-126	122-126	120-124	118-122	118-122	118-126	118-126	122-124	122-124
121/4-128/4	128-140	124-140	126-128/8	123/8-126	123/8-126	121/4-129/6	123/8	127/2
96-110	97-110	96-110	96-108	96-108	96-110	96-110	98-112	104-112
104-110	102-110	100-108	104-110	100-108	98-106	102-108	103-110	108-110
104	104	102	102	102	102	98-106	102-105	—
—	—	—	—	—	—	—	—	—
114-116	110-114	110-114	110-114	—	106-108	—	—	—
96-97	94-99	93-94	93	93-96	96-100	100-102	103-111	110-112
88-96	91-95	90-93	89-91	89-91	89-92	92-98	93-100	100-102
78-82	84-85	82-85	85-88	85-89	86-89	88-94	87-92	88-92
90-105	94-106	90-104	87-103	89-104	91-107	94-111	97-118	97-112
Per doz. lbs. 12-15	Per doz. lbs. 11/6-14/6	Per doz. lbs. 11/6-14/6	Per doz. lbs. 11/6-14/6	Per doz. lbs. 12-15	Per doz. lbs. 12-15	Per doz. lbs. 12-15	Per doz. lbs. 12-15	Per doz. lbs. 12-15
Per cwt. 118-122	Per cwt. 113-117	Per cwt. 113-117	Per cwt. 113-117	Per cwt. 118-122	Per cwt. 118-122	Per cwt. 118-122	Per cwt. 118-122	Per cwt. 118-122
111 Kr. 124/8 per — per 50 cwt. Kilos.	107 Kr. 120/2 per — per 50 cwt. Kilos.	105 Kr. 117/11 per — per 50 cwt. Kilos.	105 Kr. 117/11 per — per 50 cwt. Kilos.	105 Kr. 117/11 per — per 50 cwt. Kilos.	105 Kr. 117/11 per — per 50 cwt. Kilos.	105 Kr. 117/11 per — per 50 cwt. Kilos.	106 Kr. 119 per — per 50 cwt. Kilos.	106 Kr. 119 per — per 50 cwt. Kilos.
—	—	—	—	—	—	—	—	—
128-130	124-126	121-123	121-124	122-124	122-124	122-124	123-125	123-125
131/6-136	130-136	124-130	122/6-128	125/6-128/6	125-128	123/6-129	125/6-130	127/6-130
136-138	136-138	128-130	124-126	—	—	—	—	—
138-136	131-134	126-129	126-127	125-127	124-128	128-128	129	129
132-138	126-134	120-127	121-125	123-126	123-126	123-127	124-128	127-130
130-136	129/6-133	123/6-128/6	123-127/6	124-129	124-128/6	124-128/6	126-128/6	126-128/6
131-133	129-131	124-127	122-125	123-125	123-125	124-126	125-126	126-128
131-132	131-132	126-127	124-125	124-125	124-125	124-125	124-125	126-126
132-133	131-133	125-127	122-123	123-124	122-124	124	124/6	125/6-126
132-136	128-134	122-132	123-128	123-127	123-127	124-128	124-129	127-127
134/2	129/6	127/2	127/2	127/2	127/2	127/2	128/4	128/4
136-133	124-131	118-122	118-122	120-124	120-123	120-123	122-125	122-126
130-132	129-131	118-122	118-122	123-125	122-124	122-124	123-125	—
129-132	128-128	118-125	118-124	122-124	119-125	120-125	121-126	120-122
128	127-128	122-123	122	—	—	—	—	—

[Continued on pages 392-393.]

BUTTER PRICES DURING THE QUARTER

ABSTRACTED FROM "THE GROCER," "GROCER'S REVIEW,"

Excepting 1-lb. Rolls and Farmers' Butter all quotations are the Landed Prices of the less than the landed prices in Great Britain.

COUNTRY OF ORIGIN.	Type of Package.	Place of Sale.	WEEK ENDED			
			OCTOBER			
			5th.	12th.	19th.	26th.
RUSSIA & SIBERIA.	Kieils, ..	London, ..	Per cwt. s. s. 98-104	Per cwt. s. s. 100-106	Per cwt. s. s. 104-108	Per cwt. s. s. 108-112
		Liverpool, ...	98-104/6	98-106/6	108	108/6-111
		Bristol, ...	98-106	99-106	102-110	104-113
		Cardiff, ...	102	100-106	106-108	110-112
		Manchester, ...	102-104	102-106	102-106	104-110
		Birmingham, ...	104	106	108-108/6	108
		Newcastle-on-Tyne, ...	—	—	—	—
		Glasgow, ...	100-103	100-108	106-108	108-108
		Leith, ...	—	—	99-100	104-108
		Hull, ...	108-114	104-115	110-118	—
HOLLAND, ...	Boxes, ...	London, ...	112	—	116-118	120
	Rolls, ...	do. ...	Per doz. lbs. 13-14	Per doz. lbs. 13-14	Per doz. lbs. 13/6-14	Per doz. lbs. 13/6-14/6
	Boxes, ...	Glasgow, (Fresh, Salt,	Per cwt. 119-120	Per cwt. 119-120	Per cwt. 120-122	Per cwt. 122-128
		Manchester, ...	114-115	114-115	117-118	122-124
		—	112-115	115-117	—	120-122
		Hull, ...	115-120	117-121	120-124	122-127
	—	—	—	—	—	—
ITALY, ...	Rolls, ...	London, ...	Per doz. lbs. 13-14	Per doz. lbs. 13-14	Per doz. lbs. 13-14/6	Per doz. lbs. 13-14/6
CANADA ...	56 lb. boxes, ..	London, ...	Per cwt. —	Per cwt. —	Per cwt. —	Per cwt. —
		Liverpool, ...	108/6-112/6	110/6-116	112/6-116	113/6-117/6
		Bristol, ...	112-118	114-120	114-122	116-120
		Cardiff, ...	116-118	114-116	114-118	115-118
		Birmingham, ...	112-114/6	114-115	115-119	118-120
		Manchester, ...	112-115	115	116-117	118
		Glasgow, ...	—	—	—	—
AUSTRALIA & NEW ZEALAND.*	Boxes, ...	London, ...	A. (s. 104-114 u. 114-116 Z. 110-114	A. (s. 108-116 u. 110-118 Z. 112-116	A. (s. 110-118 u. 114-118 Z. 112-116	A. (s. 114-118 u. 116-120 Z. 116-120
		Liverpool, ...	A. — Z. —	A. — Z. —	A. — Z. —	A. — Z. —
		Bristol, ...	A. — Z. —	A. — Z. —	A. — Z. —	A. — Z. —
		Cardiff, ...	A. — Z. —	A. — Z. —	A. — Z. —	A. 114-116 Z. —
		Manchester, ...	A. — Z. —	A. — Z. —	A. — Z. —	A. — Z. —
		Birmingham, ...	A. — Z. —	A. — Z. —	A. — Z. —	A. — Z. —
		Glasgow, ...	A. — Z. —	A. — Z. —	A. — Z. —	A. 120-126 Z. —
		Leith, ...	A. — Z. —	A. — Z. —	A. — Z. —	A. — Z. —
		Hull, ...	A. — Z. —	A. — Z. —	A. — Z. —	A. 120-123 Z. —
		—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
ARGENTINA, ...	Boxes, ...	London, ...	—	—	—	—
		Liverpool, ...	—	—	—	—
		Bristol, ...	—	—	—	—
		Cardiff, ...	—	—	—	—
		Manchester, ...	—	—	—	—
		Birmingham, ...	—	—	—	—
UNITED STATES, ..	Tubs and b es,	London, ...	—	—	—	—
		Liverpool, ...	—	—	—	—
		Bristol, ...	—	—	—	—
		Cardiff, ...	—	—	—	—
		Manchester, ...	—	—	—	—

* A.—Australia. Z.—New Zealand. s.—Salted. u.—Unsalted.

ENDED 31ST DECEMBER, 1907—*continued.*

* "GROCER'S GAZETTE," AND OTHER TRADE REPORTS.

Choicest Qualities. The Nett F.O.R. Price to an Irish Creamery would be 5s. to 7s. per cwt. This figure covers freight, commission, handling, &c.

WEEK ENDED									
NOVEMBER					DECEMBER				
2nd.	9th.	16th.	23rd.	30th.	7th.	14th.	21st.	28th.	
Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.
<i>s. s.</i>	<i>s. s.</i>	<i>s. s.</i>	<i>s. s.</i>	<i>s. s.</i>	<i>s. s.</i>	<i>s. s.</i>	<i>s. s.</i>	<i>s. s.</i>	<i>s. s.</i>
110-116	110-114	108-114	109-112	106-110	108-110	108-110	108-110	108-112	108-112
108-112	108-112	110	109-114/6	110	106-110	112	111/8-112	114	114
110-114	110-114	108-114	108-114	108-112	108-112	108-112	108-112	108-112	108-110
113-114	114	112	110	110-112	108-112	106-114	106-114	106-114	112-114
110-116	110-116	110-112	108-112	109-114	108-114	110-114	112-116	112-118	112-118
110	110	112	112-113	112-113	112	114	114-114/6	114	114
—	—	—	—	—	—	—	—	—	—
110-114	110-114	108-110	108-108	108-112	106-110	—	108-112	—	—
108-110	108-110	108-110	108-110	110-112	110-112	110-112	110-112	110-112	112-114
110-116	—	110-11/5	110-114	110-114	—	—	—	—	—
Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.
Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.
128	128	123	121	122	124	125-126	125-126	125-126	125-126
122-124	122-124	117-119	115-117	116-118	118-120	120-122	120-122	120-122	120-122
126	124	—	116	120	—	120-122	120-123	122-126	122-126
127-132	126-133	124-128	120-124	122-124	121-126	124-128	124-128	125-127	125-127
Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.
13/6-15	13/6-15	13/6-14/6	13/6-14/6	13/6-15	13/6-15	13/6-15	13/6-15	13/6-15	13/6-15
Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.
116/6-121	116/6-121	114/6-118	114/6-117/6	114-117/6	113/6-117	113/6-118/6	114-116	—	—
116-126	116-124	116-121	116-118	114-118	114-118	118	118	—	—
118-121	122	120-121	—	—	—	—	—	—	—
122-125	122-124	117/6-122	—	—	—	—	—	—	—
116-118	—	—	—	—	114	—	117-122	—	—
—	—	—	—	—	—	—	—	—	—
A. {s. 116-124 u. 122-126 Z. 120-124	A. {s. 116-122 u. 118-126 Z. 120-122	A. {s. 112-120 u. 114-120 Z. 114-118	A. {s. 112-118 u. 112-118 Z. 116-120	A. {s. 112-118 u. 112-118 Z. 116-120	A. {s. 112-118 u. 112-116 Z. 116-120	A. {s. 112-118 u. 112-116 Z. 118-122	A. {s. 112-118 u. 112-118 Z. 118-120	A. {s. 110-118 u. 113-116 Z. 118-120	
A. 123-126	A. —	A. —	A. —	A. 116-121	A. 117/6-121	A. 117-121	A. 117-121	A. 117/6-121	
Z. —	Z. —	Z. —	Z. —	Z. 116-120	Z. 119/6-124	Z. 119/6-124	Z. 121/6-125	Z. 120-125	
A. 122-126	A. 122-126	A. 120-124	A. 116-122	A. 116-120	A. 116-120	A. 114-122	A. 114-122	A. 114	
Z. 124-126	Z. —	Z. —	Z. 119-120	Z. 119-121	Z. 119-120	Z. 122-124	Z. 122-124	Z. 122	
A. 121-122	A. 124	A. 12	A. 116-122	A. 116-118	A. 114-118	A. 112-118	A. 116-120	A. 116-120	
Z. 121-124	Z. 123	Z. 122	Z. 122	Z. 121-122	Z. 120-122	Z. 120-122	Z. 122-123	Z. 122	
A. —	A. —	A. —	A. 116	A. 116-123	A. 115-118	A. 116-119	A. 117-122	A. 117-122	
Z. —	Z. —	Z. —	Z. —	Z. 116-123	Z. 120-122	Z. 120-122	Z. 117-122	Z. 118-122	
A. —	A. —	A. —	A. 118-122	A. 119-122	A. 117-121	A. 116-121	A. 116-120/6	A. 118-121	
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. 122-125	Z. 122-124/6	Z. 122-125	
A. 124-126	A. 124-126	A. 120-122	A. 118-120	A. 117-118	A. 118-120	A. 118-120	A. 118-120	A. 117-119	
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	
A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	A. —	
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	
A. 125-129	A. —	A. 122-126	A. 112-118	A. —	A. 118-122	A. 116-119	A. 115-118	A. 111-116	
Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	Z. —	
120	118-122	116-120	116-120	114-120 119-122	114-118 118-120	114-118 118-120	112-118 117-120	112-119 117-120 124	112-119 117-120 124
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	118-120	118-122	120-122	120-123	120-123
—	—	—	—	—	119-122	118-120	117-122	118-122	118-122
—	—	—	—	—	—	120-122	121-122/6	120-122	120-122
—	—	—	—	—	—	—	118-120	117-118	117-118

TABLES SHOWING THE EXPORTS

TABLE

RETURN of the NUMBER of ANIMALS EXPORTED from IRELAND to GREAT
PORT of EMBARKATION

IRISH PORTS.	CATTLE.							SHEEP.		
	Fat.	Stores (fattening).	Milch Cows.	Springers.	Other Cattle.	Calves.	Total.	Sheep.	Lambs.	Total.
Ballina, . . .	75				269		344	277		277
Belfast, . . .	7,285	40,672	2,248	2,561		378	53,114	6,541	45	6,686
Coleraine, . . .		186	1				187			
Cork, . . .	3,244	10,107	1,098	1,737	882	13,844	30,912	17,663		7,668
Drogheda, . . .	7,667	11,993	289	113		4	20,036	7,111		7,111
Dublin, . . .	71,460	46,027	7,985	1,599	816	2,872	130,449	70,900	83	70,983
Dundalk, . . .	898	7,706	200	279			9,073	4,132		4,132
Dundrum, . . .										
Greenore, . . .	330	7,370	230	834		34	8,697	3,316	1,838	5,153
Larne, . . .	152	5,822	2	128	18	1,706	7,828	124		124
Limerick, . . .	864	281				164	1,299	43		43
Londonderry, . . .	1,271	16,656	266	968	894	2,707	22,761	3,993	1,903	4,996
Newry, . . .	80	2,738	14	2			2,834	1,883		1,883
Portrush, . . .	8	223					231	44	12	56
Sligo, . . .	587	393			364		1,344	2,935		2,935
Waterford, . . .	7,882	16,834	92	266	379	1,166	26,619	7,727		7,727
Westport, . . .	427	10		6	178		621	5,255		5,255
Wexford, . . .	456	98		2			556	3,893	513	4,346
Total, . . .	102,656	167,025	12,104	8,485	3,800	22,865	316,935	125,776	3,494	129,270

TABLE

RETURN of the NUMBER of ANIMALS EXPORTED from IRELAND to GREAT
PORTS of DEBARKATION

BRITISH PORTS.	CATTLE.							SHEEP.		
	Fat.	Stores (fattening).	Milch Cows.	Springers.	Other Cattle.	Calves.	Total.	Sheep.	Lambs.	Total.
Ardrossan, . . .	1,646	9,366	1,170	773		34	12,979	115		115
Ayr, . . .	2,117	13,642	368	633	18	527	17,303	256		256
Barrow, . . .	86	1,172	80	234			1,572	62	45	97
Bristol, . . .	916	6,423	209	238		1,688	9,474	4,942	513	5,455
Campbelltown, . . .		60					60			
Fishguard, . . .	4,811	11,216	810	1,232	83	9,954	28,106	7,997		7,997
Fleetwood, . . .	92	2,869	278	329	32	43	3,633	2,805	224	3,029
Glasgow, . . .	14,928	32,476	629	934	2,727	4,169	55,862	818	162	980
Greenock, . . .	882	6,794	16	101	10		6,803	20	8	28
Heysham, . . .	2,825	13,434	712	569		129	17,699	2,761		2,761
Holyhead, . . .	13,507	22,506	1,122	1,088	13	1,043	39,279	24,320	1,838	26,158
Liverpool, . . .	47,942	43,054	6,650	2,166	912	3,369	104,122	75,456	621	76,077
London, . . .	8			2			10			
Manchester, . . .	8,805	108	56	5	5	3	8,982	5,975		5,975
Newhaven, . . .			1			2	3			
Plymouth, . . .	756	108		1		504	1,364			
Silloth, . . .	3,077	692				14	3,683	177	83	260
Southampton, . . .	124	21	3	27		22	197	82		82
Stranraer, . . .	134	4,221	2	124		1,344	5,826			
Whitehaven, . . .										
Total, . . .	102,656	167,025	12,104	8,485	3,800	22,865	316,935	125,776	3,494	129,270

AND IMPORTS OF ANIMALS.

I.

BRITAIN during the Three Months ended 31st DECEMBER, 1907, showing the in Ireland.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	IRISH PORTS.
Fat.	Stores.	Total.		Stallions.	Mares.	Geldings.	Total.				
251	.	251	.	.	.	.	.	.	.	872	Ballina.
7,540	575	8,115	31	5	510	1,112	1,627	.	7	69,510	Belfast.
23	.	23	.	.	9	4	13	.	.	223	Coleraine.
8,589	.	8,589	.	.	147	297	444	.	25	47,633	Cork.
1,458	126	1,584	3	.	3	22	31	.	.	28,765	Drogheda.
106,353	.	106,354	6	22	1,080	1,158	2,238	1	2	310,055	Dublin.
15,331	417	15,748	9	.	77	63	140	.	1	29,103	Dundalk.
.	.	.	.	.	.	.	.	.	.	.	Dundrum.
2,239	253	2,492	6	.	518	358	876	.	2	17,226	Greenore.
225	455	680	10	2	33	35	70	.	.	8,712	Larne.
.	.	.	.	.	.	6	6	.	2	1,350	Limerick.
3,254	104	3,358	1	1	13	35	49	.	1	31,166	Londonderry.
655	.	655	1	.	3	.	3	.	.	5,377	Newry.
853	8	866	.	.	2	.	2	.	.	1,155	Portrush.
11,924	.	11,924	.	.	.	4	4	.	.	16,207	Sligo.
11,183	.	11,183	2	2	336	457	795	1	.	46,327	Waterford.
2,804	.	2,804	.	.	3	1	4	.	1	8,685	Westport.
3,221	.	3,221	.	.	5	7	12	.	1	8,136	Wexford.
175,909	1,939	177,848	69	32	2,745	3,559	6,336	2	42	630,502	Total.

II.

BRITAIN during the Three Months ended 31st DECEMBER, 1907, showing the in Great Britain.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	BRITISH PORTS.
Fat.	Stores.	Total.		Stallions.	Mares.	Geldings.	Total.				
232	284	516	.	.	52	199	251	.	.	13,861	Ardrossan.
2,744	386	3,130	10	.	32	107	139	.	3	20,341	Ayr.
2,431	44	2,475	.	.	16	15	31	.	.	4,175	Barrow.
6,604	.	6,604	.	.	86	165	251	1	2	21,787	Bristol.
.	.	.	.	.	.	.	.	.	.	60	Campbelltown.
5,572	.	5,572	2	2	371	422	895	.	.	42,571	Fishguard.
2,939	111	3,050	3	4	222	354	580	.	2	9,597	Fleetwood.
10,779	85	10,864	1	.	119	261	380	.	4	68,081	Glasgow.
22	28	50	20	1	6	9	16	.	.	6,917	Greenock.
17,292	.	17,292	.	.	135	265	400	.	.	38,152	Heysham.
69,691	253	69,944	7	22	1,301	1,161	2,464	1	3	136,876	Holyhead.
57,443	363	57,801	26	1	259	316	576	.	26	238,628	Liverpool.
.	.	.	.	.	4	7	11	.	1	22	London.
886	.	886	.	.	71	65	136	.	.	15,979	Manchester.
.	.	.	.	.	.	.	.	.	.	3	Newhaven.
480	.	480	.	.	2	3	5	.	.	1,849	Plymouth.
.	.	.	.	.	8	20	28	.	.	3,971	Silloth.
494	.	494	.	.	28	55	83	.	1	867	Southampton.
.	380	380	.	2	33	35	70	.	.	6,285	Stranraer.
.	.	.	.	.	.	.	.	.	.	.	Whitehaven.
175,909	1,939	177,848	69	32	2,745	3,559	6,336	2	42	630,502	Total.

TABLE

RETURN of the NUMBER of ANIMALS IMPORTED into IRELAND from GREAT BRITAIN
of DEBARKATION

IRISH PORTS.	CATTLE.							SHEEP.		
	Fat.	Stores (fattening).	Milch Cows.	Springers.	Other Cattle.	Calves.	Total.	Sheep.	Lambs.	Total.
Ballina. . .	.	62	1	.	.	.	63	9,320	.	9,329
Belfast. . .	.	1	.	.	.	.	2	58	.	58
Coleraine.	1	2	28	.	28
Cork.
Drogheda.
Dublin. . .	1	50	1	.	.	6	58	5,308	374	5,682
Dundalk. . .	.	6	.	.	.	7	12	25	.	25
Dundrum.
Greenore.
Larne. . .	.	28	4	.	.	10	42	1,180	36	1,216
Limerick.	1,076	709	1,785
Londonderry.	109	109
Newry.
Portrush.
Rosslare.
Sligo.	1	1	94	123	217
Waterford. . .	.	53	.	.	.	.	53	112	.	112
Westport.	6	17	22
Wexford.	3	.	1	6	10	.	.	.
Total. . .	1	199	9	.	1	31	241	17,215	1,368	18,583

TABLE

RETURN of the NUMBER of ANIMALS IMPORTED into IRELAND from GREAT BRITAIN
EMBARKATION in

BRITISH PORTS.	CATTLE.							SHEEP.		
	Fat.	Stores (fattening).	Milch Cows.	Springers.	Other Cattle.	Calves.	Total.	Sheep.	Lambs.	Total.
Ardrossan. . .	.	56	.	.	.	.	56	3,106	.	3,106
Ayr. . .	.	3	1	.	.	.	4	5,394	.	5,394
Barrow.	3	.	1	7	11	22	.	22
Bristol. . .	.	3	.	.	.	.	3	.	.	.
Falmouth.	21	.	21
Fishguard.	9	.	9
Fleetwood.	5,591	981	6,572
Glasgow. . .	1	65	1	.	.	4	71	906	322	6,672
Greenock. . .	.	12	.	.	.	.	12	18	.	18
Heysham. . .	.	1	.	.	.	3	1	11	12	12
Holyhead. . .	.	8	.	.	.	7	20	6	.	6
Liverpool. . .	.	13	.	.	.	.	.	.	.	.
London.
Manchester.
Plymouth.
Portsmouth.
Southampton. . .	.	8	.	.	.	.	8	1,788	29	1,817
Stranraer. . .	.	2	.	.	.	.	2	.	.	.
Whitehaven. . .	.	28	4	.	.	10	42	944	36	980
Total. . .	1	199	9	.	1	31	241	17,215	1,368	18,583

III.

during the Three Months ended 31st DECEMBER, 1907, showing the PORTS in Ireland.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	IRISH PORTS.
Fat.	Stores.	Total.		Stallions.	Mares.	Geldings.	Total.				
.	3	3	1	4	46	55	105	.	.	9,501	Ballina.
.	.	.	1	4	44	42	90	1	.	59	Belfast.
.	2	1	3	.	.	121	Coleraine.
.	.	.	.	35	283	186	484	.	.	3	Cork.
.	3	3	6	.	.	6,224	Drogheda.
.	43	Dublin.
.	.	.	.	3	25	17	45	.	.	45	Dundalk.
.	.	.	.	4	8	3	15	.	.	1,273	Dundrum.
.	Greenore.
.	Larne.
.	.	.	.	1	6	7	14	.	.	1,799	Limerick.
.	3	1	4	.	.	.	Londonderry.
.	Newry.
.	109	Portrush.
.	.	.	.	2	.	1	3	.	.	3	Rosslare.
.	2	1	3	.	.	221	Sligo.
.	.	.	.	1	33	38	72	.	.	237	Waterford.
.	22	Westport.
.	1	1	2	.	.	12	Wexford.
.	3	3	2	54	456	336	846	1	.	19,676	Total.

IV.

during the Three Months ended 31st DECEMBER, 1907, showing the PORTS of Great Britain.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	BRITISH PORTS.
Fat.	Stores.	Total.		Stallions.	Mares.	Geldings.	Total.				
.	.	.	.	2	4	2	8	.	.	3,170	Ardrossan.
.	1	10	11	.	.	5,409	Ayr.
.	3	3	.	.	1	1	2	.	.	5	Barrow.
.	.	.	.	2	24	14	40	.	.	73	Bristol.
.	3	Falmouth.
.	.	.	1	4	56	67	127	.	.	149	Fishguard.
.	.	.	.	1	13	23	37	.	.	46	Fleetwood.
.	.	.	.	1	28	24	53	1	.	6,897	Glasgow.
.	4	7	11	.	.	650	Greenock.
.	9	14	23	.	.	42	Haysham.
.	.	.	.	31	233	132	396	.	.	419	Holyhead.
.	.	.	1	2	28	25	53	.	.	79	Liverpool.
.	1	1	2	.	.	2	London.
.	1	1	2	.	.	2	Manchester.
.	.	.	.	1	2	5	8	.	.	6	Plymouth.
.	2	4	6	.	.	4	Portsmouth.
.	.	.	.	6	43	8	57	.	.	1,882	Silloth.
.	2	Southampton.
.	.	.	.	4	8	2	14	.	.	1,036	Stranraer.
.	Whitehaven.
.	3	3	2	54	456	336	846	1	.	19,675	Total.

RETURN of the NUMBER of ANIMALS EXPORTED from IRELAND to the
showing the PORTS of

IRISH PORTS.	CATTLE.					SHEEP.		
	Fat.	Stores.	Other Cattle.	Calves	Total.	Sheep.	Lambs.	Total.
BELFAST, . . . .	.	48	.	2	50	29	.	29
DUBLIN,	160	145	.	28	333	.	.	.
TOTAL,	160	193	.	30	383	29	.	29

RETURN of NUMBER of ANIMALS EXPORTED from IRELAND to the
showing the PORTS of DEBARKATION

ISLE OF MAN PORT.	CATTLE.					SHEEP.		
	Fat.	Stores.	Other Cattle.	Calves	Total.	Sheep.	Lambs.	Total.
DOUGLAS,	160	193	.	30	383	29	.	29

RETURN of the NUMBER of ANIMALS IMPORTED into IRELAND from the
showing the PORTS of

IRISH PORTS.	CATTLE.					SHEEP.		
	Fat.	Stores.	Other Cattle.	Calves	Total.	Sheep.	Lambs.	Total.
BELFAST,
DUBLIN,
TOTAL,

RETURN of the NUMBER of ANIMALS IMPORTED into IRELAND from the
showing the PORTS of EMBARKATION

ISLE OF MAN PORT.	CATTLE.					SHEEP.		
	Fat.	Stores.	Other Cattle.	Calves	Total.	Sheep.	Lambs.	Total.
DOUGLAS,

ISLE OF MAN during the Three Months ended 31st DECEMBER, 1907,
EMBARKATION IN IRELAND.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	IRISH PORTS.
Fat.	Stores.	Total.		Stal- lions.	Mares.	Geld- ings.	Total.				
.	79	BELFAST.
.	333	DUBLIN.
.	412	TOTAL.

ISLE OF MAN during the Three Months ended 31st DECEMBER, 1907,
in the ISLE OF MAN.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	ISLE OF MAN PORT.
Fat.	Stores.	Total.		Stal- lions.	Mares.	Geld- ings.	Total.				
.	412	DOUGLAS.

ISLE OF MAN during the Three Months ended 31st DECEMBER, 1907,
DEBARKATION IN IRELAND.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	IRISH PORTS.
Fat.	Stores.	Total.		Stal- lions.	Mares.	Geld- ings.	Total.				
.	1	.	1	.	.	1	BELFAST.
.	DUBLIN.
.	1	.	1	.	.	1	TOTAL.

ISLE OF MAN during the Three Months ended 31st DECEMBER, 1907,
in the ISLE OF MAN.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	ISLE OF MAN PORT.
Fat.	Stores.	Total.		Stal- lions.	Mares.	Geld- ings.	Total.				
.	1	.	1	.	.	1	DOUGLAS.

COASTING AND

RETURN of the NUMBER of ANIMALS SHIPPED to and from Places in Ireland
of Embarkation

IRISH PORTS.	CATTLE.					SHEEP.			SWINE.		
	Fat.	Stores.	Other Cattle.	Calves.	Total.	Sheep.	Lambs.	Total.	Fat.	Stores.	Total.
Cork to Aghada Pier,	1	1	.	.	.	.	.	.
" to Belfast, .	4	1	.	.	5	.	.	.	.	.	.
" to Spike Island,	4	.	4
" to Queenstown,	9	.	9
" to Waterford,
Total, .	4	1	.	1	6	.	.	.	.	13	13
Aghada Pier to Cork,	2	.	2	195	.	195
Dublin "
Spike Island "	4	.	4
Queenstown "	95	.	95
Waterford "	23	.	23	.	.	.
Total,	25	.	25	294	.	294
Waterford to Ballyhack,
" to Belfast, .	.	1	.	.	1	.	.	.	.	.	.
" to Duncannon, .	.	24	.	7	31	.	.	.	.	.	.
Total, .	.	25	.	7	32	.	.	.	.	.	.
Ballyhack to Waterford, .	3	18	.	.	21	4	.	4	124	.	124
Belfast to Waterford,
Dublin to Waterford
Duncannon to Waterford, .	1	65	.	.	66	.	.	.	166	.	166
Kilrush to Limerick, .	.	215	.	.	215	.	.	.	885	.	885
Kildysart "
Glin "	12	.	12
Portumna "
Tarbert "	18	.	18
Banagher "
Total, .	.	215	.	.	215	.	.	.	915	.	915
Greencastle to Greenore, .	.	2	.	.	2	30	.	30	.	.	.
Greenore to Greencastle,
Londonderry to Moville,
Moville to Londonderry, .	5	89	.	20	114	35	.	35	5	.	5
Ballina to Sligo,
Belmullet " .	.	4	43	.	47	.	.	.	847	.	847
Total, .	.	4	43	.	47	.	.	.	847	.	847
Sligo to Belmullet,	2	.	2	.	.	.
Total, .	13	409	43	28	493	96	.	96	2,351	13	2,364

INLAND NAVIGATION.

during the Three Months ended 31st December, 1907, showing the Places and Debarkation.

Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	IRISH PORTS.
	Stallions.	Mares.	Geldings.	Total.				
.	1	Cork to Aghada Pier.
.	5	" to Belfast.
.	4	" to Spike Island.
.	9	" to Queenstown.
.	" to Waterford.
.	19	Total.
.	197	Aghada Pier to Cork.
.	.	.	1	1	.	.	1	Dublin "
.	4	Spike Island "
.	95	Queenstown "
.	23	Waterford "
.	.	.	1	1	.	.	320	Total.
.	Waterford to Ballyhack.
.	.	1	.	1	.	.	2	" to Belfast.
.	31	" to Duncannon.
.	.	1	.	1	.	.	33	Total.
.	149	Ballyhack to Waterford.
.	Belfast to Waterford.
.	Dublin to Waterford.
.	222	Duncannon to Waterford.
.	5	10	8	23	.	.	1,123	Kilrush to Limerick.
.	Kildysart "
.	12	Glin "
.	Portumna "
.	18	Tarbert "
.	Banagher "
.	5	10	8	23	.	.	1,153	Total.
.	32	Greencastle to Greenore.
.	Greenore to Greencastle.
.	Londonderry to Moville.
.	154	Moville to Londonderry.
.	Ballina to Sligo.
.	894	Belmullet "
.	894	Total.
.	2	Sligo to Belmullet.
.	5	11	9	25	.	.	2,978	Total.

RETURN of the NUMBER of HORSES EXPORTED from IRELAND through GREAT BRITAIN to the COLONIES and FOREIGN COUNTRIES during the THREE MONTHS ended 31st DECEMBER, 1907, showing the Ports of Embarkation in Ireland.

PORTS.	Number of Horses.			
	Stallions.	Mares.	Geldings.	Total.
Belfast,	1	71	27	99
Cork,	—	—	—	—
Dublin,	—	30	20	50
Dundalk,	—	57	34	91
Greenore,	—	124	51	175
Waterford,	—	—	—	—
Total,	1	282	132	415

RETURN of the NUMBER of HORSES IMPORTED into IRELAND through GREAT BRITAIN from the COLONIES and FOREIGN COUNTRIES during the THREE MONTHS ended 31st DECEMBER, 1907, showing the Ports of Debarkation in Ireland.

PORTS.	Number of Horses.			
	Stallions.	Mares.	Geldings.	Total.
Belfast,	—	—	—	—
Dublin,	6	44	—	50
Waterford,	—	—	—	—
Total,	6	44	—	50

RETURN of the NUMBER of HORSES IMPORTED into IRELAND direct from FOREIGN COUNTRIES during the THREE MONTHS ended 31st DECEMBER, 1907, showing the Ports of Debarkation in Ireland.

PORTS.	Number of Horses.			
	Stallions.	Mares.	Geldings.	Total.
Dublin,	—	—	—	—
Portrush,	—	—	—	—
Total,	—	—	—	—

EMIGRATION FROM IRELAND.

TABLE showing, by Destinations, the Numbers of Emigrants (Natives of Ireland) who left the Ports of Ireland during the months of October, November, and December, 1907, and the total for the Twelve Months ended the 31st December, 1907; together with the total Number of Emigrants in each of the corresponding periods of the year 1906.

DESTINATION.	October, 1907.	November, 1907.	December, 1907.	Twelve Months ended 31st December, 1907.
FOREIGN COUNTRIES :—				
America (U.S.),	3,558	1,155	368	30,006
Canada,	297	185	32	4,296
South Africa,	28	9	8	226
Australia,	22	37	21	365
New Zealand,	14	26	17	143
Other Countries,	7	7	2	84
Total,	3,926	1,419	448	35,120
GREAT BRITAIN :—				
England and Wales,	216	202	131	2,344
Scotland,	141	187	86	1,618
Total,	357	389	217	3,962
General Total for 1907,	4,283	1,808	665	39,082
General Total for 1906,	3,140	1,372	751	35,344

The figures are subject to revision in the Annual Report.

The figures in the above Table have been extracted from Returns published by the Registrar-General for Ireland.

ACCOUNT showing the QUANTITIES of certain kinds of AGRICULTURAL
into Ireland in each WEEK from

ARTICLES.	WEEK ENDED					
	5th Oct.	12th Oct.	19th Oct.	26th Oct.	2nd Nov.	
ANIMALS, LIVING—						
Horses, No.	.	.	.	.	.
FRESH MEAT—						
Beef (including refrigerated and frozen), cwt.	.	.	.	1,200	.	
Mutton, " " " " " cwt.	.	.	.	570	.	
SALTED OR PRESERVED MEAT—						
Bacon, cwt.	.	.	.	.	.
Beef, . . . . . "	.	.	.	.	.
Hams, "	.	1	.	.	.	
Pork, "	.	197	.	197	.	
Meat, unenumerated, Salted or Fresh, cwt.	.	.	.	5	.	
Meat preserved otherwise than by salting (including tinned and canned), cwt.	.	.	643	.	8	
DAIRY PRODUCE AND SUBSTITUTES—						
Butter, cwt.	.	.	.	.	.
Margarine, "	203	164	274	89	122	
Cheese, "	.	633	.	.	3	
Milk, Condensed, "	57	81	73	58	12	
" Cream, . . . . . "	.	.	.	.	.
" Preserved, other kinds " "	.	.	.	.	.
Eggs, gt. hunds.	300	540	1,980	480	2,400	
LARD, cwt.	6	.	692	.	163	
CORN, GRAIN, MEAL, AND FLOUR—						
Wheat, cwt.	56,700	430,900	41,100	150,100	201,400	
Wheat Meal and Flour, "	5,300	39,200	53,900	3,000	147,600	
Barley, "	.	42,900	69,900	.	51,600	
Oats, . . . . . "	.	.	.	.	.
Peas, "	70	40	170	70	80	
Beans, . . . . . "	.	.	.	.	.
Maize or Indian Corn, "	94,900	101,400	552,000	193,900	213,600	
FRUIT, RAW—						
Apples, cwt.	54	307	142	220	159	
Currants, . . . . . "	.	.	.	.	.
Gooseberries, . . . . . "	.	.	.	.	.
Pears, "	276	136	110	.	23	
Plums, . . . . . "	.	.	.	.	.
Grapes, . . . . . "	.	.	.	.	.
Lemons, . . . . . "	.	.	.	.	.
Oranges, . . . . . "	.	.	.	.	.
Strawberries, . . . . . "	.	.	.	.	.
Unenumerated, . . . . . "	.	.	.	.	.
HAY, tons	.	.	.	.	.
STRAW, "	200	.	.	.	.
MOSS LITTER, "	24	37	63	103	20	
HOPS, cwt.	.	.	.	.	.
VEGETABLES, RAW—						
Onions, bushels	4,186	1,909	3,080	2,112	5,072	
Potatoes, cwt.	.	.	.	.	.
Tomatoes, . . . . . "	.	.	.	.	.
Unenumerated, £	8	12	13	2	18	
VEGETABLES, DRIED, cwt.	.	.	.	.	.
Preserved by Canning, . . . . . "	.	.	.	.	.
POULTRY AND GAME, . . . . . £	.	.	.	.	.

* This Table is confined to the Imports of certain kinds of Agricultural Produce into to a request from this Department kindly consented to separate the Irish Imports (direct) form of Weekly Returns.

PRODUCE Imported direct (i.e. from the Colonies and Foreign Countries)
5th October, 1907, to 28th December, 1907.*

WEEK ENDED							
9th Nov.	16th Nov.	23rd Nov.	30th Nov.	7th Dec.	14th Dec.	21st Dec.	28th Dec.
.
.	3,050	.	.	.	.	76	.
.	1,450	.	.	.	.	98	.
.
446	120	.	197	.	1	1	.
.	27	.	.	.	.	.	.
.	2,209	.	.	.	1,050	35	.
130	143	252	113	177	115	170	83
30	64	3	67	52	390	3	.
.	.	10	.	.	37	59	67
.
.	1,330	972	1,440	2,100	1,620	1,020	.
.	14	6	.	370	2,422	27	1,258
103,300	.	137,700	61,900	55,700	74,600	6,400	.
43,900	17,300	4,700	26,400	63,500	51,000	81,800	2,300
.	.	.	149,600	300	5,300	.	.
.	.	.	.	.	.	28,500	18,600
100	270	60	100	60	280	220	.
328,300	269,000	210,500	93,800	143,200	189,300	86,600	.
.	298	.	.	36	453	60	.
.
.	75	.	.	.	.	.	.
.
.
.
.
.
.
.	110	58	18	128	37	.	102
.
1,858	1,788	4,488	3,884	1,498	3,884	2,482	1,700
20	.	.	20	.	30	20	.
.	13	11	8	4	.	4	3
.	.	.	.	40	.	.	.
.
.

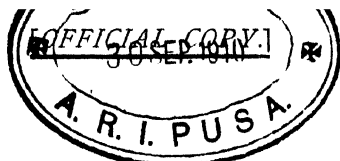
Ireland from the Colonies and Foreign Countries. The Board of Customs have in answer from those of the United Kingdom, and to supply this Department with them in the

Statistics and Intelligence Branch,
Department of Agriculture
and Technical Instruction for Ireland

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Vol. VIII.



No. 3.

DEPARTMENT OF AGRICULTURE

AND

TECHNICAL INSTRUCTION FOR IRELAND.

JOURNAL.

The Farmer and the Labourer; a Talk with Farmers—Flax Experiments, 1906—
Black Scab in Potatoes—Use and Purchase of Manures—Rearing Chickens
in Brooders—Technical Instruction in Queenstown—American Gooseberry
Mildew—Preservation of Eggs—Training Factory Girls in Domestic Science—
Irish Produce Exhibit at Glasgow—Official Documents—Notes and Memoranda
—Statistical Tables.

EIGHTH YEAR.

No. 3.

APRIL, 1908.



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NOTICE.

Communications respecting the literary contents of this JOURNAL should be addressed to the Superintendent of the Statistics and Intelligence Branch, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion-street, Dublin.

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THE FARMER AND THE LABOURER.

A TALK WITH FARMERS.

BY

T. P. GILL.

[An Address delivered before the Tipperary Farmers' Society in the Town Hall, Tipperary, February 15, 1908.]

This society of yours, rising spontaneously, with its admirable and enlightened objects, seems to me one of the many gratifying symptoms of the civil development which is taking place in Ireland since her emancipation from some of the influences of the late land system. Its objects, as stated in your rules, are "to study, debate, and take action on questions affecting the business of the members, such as legislation, foreign competition, transit, labour (its supply and efficiency), insurance, co-operation, rates, education," and "to promote mutual good feeling and toleration among Irishmen differing in religion and politics." In other words, you mean to seek systematically a knowledge of yourselves and the state of things you have to do with—knowledge which is one of the first essentials of right existence in a community—and you mean to do that in such a way as to draw men together who have hitherto been working apart. These are great objects. Pursue them with sincerity and without fear, and you will do great good not only to your county but to your country. There is only one word of advice which a long experience of public life and public associations of various kinds prompts me to offer you, if I may, since your society is at the outset of its career. Keep it absolutely candid in its aims and in its methods, and never let it, in its satisfaction with the fine work it is bound to do, feel contempt for other forms of effort, above all for political effort, whether you take part in it or not. That leads to mischief. We should not be here to-day, ex-tenants and ex-landlords, and the rest, peacefully consulting together for the good of our country, but for political effort. The old Greek states punished such contempt as bad citizenship. Finally there is one test I would recommend for all your action. If a given course tends to draw together and unite—whether it be unity within a party, or in conjunction with a party, or among classes—then select it, unless there is some overwhelming reason of

principle against it ; if it tends to split and divide, distrust it. Let your influence on public life, so far as it goes, be to purify, to ennoble, and to humanise it. These I know to be your own aims, they are implied in the statement of your objects ; as an old hand to a young society, I only venture to underscore them.

A NOTE OF WARNING.

Now, the subject I propose to take to-day for what I will not, if you allow me, call a lecture, but a talk among friends, is one of those enumerated on your list for your society to “study, debate, and take action on.” It is the question of labour, its supply, and efficiency. To lecture implies something dogmatic, and I do not want to dogmatise, especially on a subject about which you know a great deal more in a practical way than I do. I only want to suggest, to put before you, some matters for your own thought and judgment. Perhaps, also, what I say may serve the function of a note of warning. The looker-on, they say, sees most of the game, and the warning voice of the hurler on the ditch may sometimes be useful. I only ask you to remember in all that I shall try to say to-day, that you are listening to the voice of a friend, of one profoundly anxious for the welfare of the farming class, and in a particular way for the farming class of Tipperary. I have chosen this subject because it appears to me, looking on at what is happening in the country, that there is some urgency about it. I am convinced—and I share the conviction with far better authorities on the subject than I—indeed it is now the general conviction—that if Irish agriculture is not to go down under foreign competition we must entirely change the system of farming we have been pursuing for the past few decades, and adopt a system the prime essential of which is labour. Whether it be the labour of the small farmer himself and his own family, or that of the paid worker on the larger holding, the salvation of the Irish farmer, and, through him, as I shall endeavour to show, the salvation of other classes in the nation, is going to depend henceforth on the amount of labour that is put into the cultivation of the land. There must be more tillage, and that of the highest kind, or farming will go bankrupt—that is the verdict, and few now dispute it ; and if farming goes bankrupt, the rest of the country, which has gone into pledge to the extent of many millions to establish in a position of independence those who undertake to carry on the farming industry, will go bankrupt with it. To avert that fate the farmers and the labourers must realise their responsibilities to each other and to the country. They are necessary

to each other ; and it is essential they should understand each other. Now, it is because it is apparent from many symptoms that these two classes do not understand each other as they ought, nor understand their respective responsibilities—I go up and down the country, and I hear what farmers say and I hear what labourers say—it is because one sees estrangement rather than drawing together taking place between these two classes who cannot get on without each other, and who can bring about the ruin of the country as well as their own ruin if they do not become linked together as one interest, it is for these reasons I say there is some urgency about this question. And it is as an anxious friend I come to put before you, as matter for consideration and criticism, some suggestions as to how the right road may be found.

Gentlemen, I can but open this subject to you to-day. It has many aspects, and it would take several lectures or talks to expound it with anything approaching to fulness. My hope is, that having broached it, which is all I can do now, you will feel it is important enough for you to go into it more deeply, and to discuss it again, and more than once. I will confine myself to indicating a few leading features.

NEW RESPONSIBILITIES OF THE FARMING CLASS.

And firstly, let me refer to the new responsibilities of the farming class to the nation which the land transfer now proceeding imposes on them. Their self-interest is now the national interest in a way it never was before. They must seek their prosperity to the very utmost extent, they must strive, the big and the little amongst them, to become as comfortable, as well off, and as independent as they can, they must no longer rest content with the barely needful for themselves ; because the Irish nation having, at great sacrifice, arranged to place them in a position in which everything they earn will be their own, is interested, first as their surety and next as the final owner of the soil, in seeing that they make their industry yield every ounce of benefit to all concerned that it is capable of yielding. It will take us all some time to get used to the fact we are in presence of to-day in Ireland—the fact that a vast revolution is taking place, one of the great revolutions of history. The land of Ireland was acquired by conquest, and during some centuries was held by the strong hand for the descendants of those who conquered it. It has been re-conquered back again, not this time by the sword, but by methods which nevertheless involved struggles and sacrifices and heavy cost in many ways to the nation. By whom has it been re-conquered ? And for whom ?

By the Irish people, and for the Irish people. And the Irish people here means all classes of the nation whatsoever, including the very class which has been expropriated—the shopkeeper, the artisan, the labourer, the professional man, the sempstress in the city slum. All of them, so to speak are in pawn for the land. The money for such elements of civilized life as we possess is mortgaged in the Guarantee Fund. If the tenant purchaser does not pay his instalments the children may be deprived of their schooling and the lunatics may be left at large. The prosperity of all classes depends on the use that is made of the land by the class to whom it has been entrusted. I use that word entrusted advisedly, for the Irish farmer in his new capacity is the trustee of the nation in respect of his land. His responsibilities by no means end, but only begin, with the payment of his annuity. By the use to which the land is now to be put more than by any other single cause must be determined the future position which Ireland is to occupy among European countries, and it is to him chiefly the high duty of achieving that position for her has been assigned.

THE POSITION OF OTHER CLASSES COMPARED.

Realise the change in his situation if all goes well with land purchase. The Irish farmer of the future, with sufficient land, is in a fair way of having one of the first of all the requisites of human happiness—a home of his own secured to him and to his children's children, buttressed against attack and victualled like a fortress. At the worst he need never starve. He can feed himself and his family from the produce of his fields. At the best, he has an inheritance which all other classes may envy him. It roots him and his family in the soil, and makes of them the chief source from which the nation must draw her strength. However modest in his limits, however hard the toil it calls for, let him but give it the labour of his hands and brain and the best impulses of his heart, and he can make it a scene of happiness and beauty for himself and for others. And more than this, it is a citadel of independence, the very spot on which the virtues of a free people were meant to flourish. Of how few classes in Ireland can half so much be said as yet? How different, for instance, is the lot of all the wage-earners, even the higher sort of wage-earners, living in hired houses and lodgings, with no hearthstone which they know will also be that of their children, shifting and changing at the mercy of all sorts of vicissitudes, insecurity and precariousness the law of their condition. A new invention, a momentary slackness of trade and the best workmen are sent to join the unemployed, helpless to prevent it; if

their health fails they are ruined ; eviction from their tenement and the open doors of the workhouse are always before their eyes. None of these classes want to disturb the farmer in the enjoyment of his inheritance. On the contrary, they want to see him flourish in it exceedingly. That is what they want him to do. They want him to make the most out of the land for his own sake and for theirs, to utilise it for the greatest benefit of the country.

THE FARMER HAS DUTIES AS WELL AS RIGHTS.

But if he does not do this—and he is not doing it now over a large part of Ireland—then let him beware of the feeling of these classes, especially those of them who are nearest to the land and who have natural claims upon it, the agricultural labourer, the rural artisan, yes, even the country shopkeeper. I am striking this warning note in good time, when happily all danger can be averted, but let the point be well appreciated. If the soil is now to be left to the forces of nature, as it is being left more and more in so many parts of the country—I am thinking now less of Tipperary than of most parts ; thank God the leprosy of lean and lazy grass is not quite so bad in Tipperary—I say, if the soil is to be left to the forces of nature, then the Land Acts need not have been passed. The landless unemployed who have a natural right to live on and by the land will have a real and just grievance. The labourer has not been overlooked altogether by the Legislature. He is being provided with an improved dwelling, and with a plot of land. But how is he to clothe and feed himself and his family ? For a brief period he may rest satisfied with his plot and the improvement in his dwelling. But if this be all, if the land is to go to grass, and on grass he cannot live, if no heed be taken of him in this scheme of economy, it cannot be for long. If the land is not used partly to his advantage, if he receives none of its products in money or in kind, he will become a source of weakness rather than a source of strength to the farmer and to the country.

THE ROAD TO SUCCESS—PRODUCE THE HIGH-CLASS ARTICLE.

Fortunately the way out of the situation is clear. The road to the farmer's own prosperity happens to be the road which will furnish employment for the labourer on the land, and which will mean the use of the land to the greatest advantage of the country. Ireland's way to success in agriculture is to go in for producing the finished and the high-class article. That is the difference between the developed and the undeveloped country in all branches of industry.

Ireland is conducting her agriculture too much as if she were an undeveloped country : she is too deeply engaged in producing a second-class unfinished article, store stock, and her farmers are too dependent on the co-operation of the British farmers for whose higher grade of the industry they are content to provide this semi-raw material. In this sort of competition the undeveloped country, with its vast territory, its virgin soil, and its sparse population, can always beat her. It is a competition of cheapness. For Ireland such a competition is a game of beggar-my-neighbour, with herself always bound to be the beggared one. Let her exchange it for a competition not in producing the cheapest but in producing the dearest article, a competition for high quality, not for low price. There she can win every time, and the new country cannot touch her. The speciality, in all industries, pays best, and Ireland is eminently qualified to make a speciality in several branches of agriculture.

VALUE OF ONE SPECIALITY—BREAKFAST-TABLE PRODUCE.

Just glance at one of the branches for which above all others she is adapted, owing to her climate, soil, and the character of her holdings, the providing of the best breakfast tables with fresh cream, butter, eggs, and bacon. For these commodities the demand is enormous and the danger of foreign competition the least. See what is happening this moment about butter—a “butter panic” you read in the papers—excitement in Manchester, Glasgow, and London over the short supply—the price up to 150s. Let our winter dairying friends make a note. It is not the Irish butter producer who is reaping this harvest, but the Dane with his winter dairying. There is room for the Irishman and the Dane many times over, at the top prices, in that insatiable British market, which all the world can hardly manage to supply. It must come as a surprise to many people who are not accustomed to esteem very highly the comparative part played by these commodities in Irish agriculture—eggs and poultry, bacon and dairy produce—to learn that the value of our exports in these commodities, viz., £9,286,000, surpasses that of our cattle, viz., £8,927,000. (These figures are from the last published export and import returns, and they are for the year 1905.) The eggs and poultry export alone now amounts to £3,400,000 in round numbers—very little short of our export of butter, and nearly a million more than our export of bacon and hams. So much for the despised hen and her egg ; and remember this branch of industry is really despised in many quarters. I know of a County Committee secretary who was ashamed to put his

name to the advertisements for the poultry instruction scheme. But the silly prejudice is disappearing, and in 1905 we had the gratifying fact that the export from this industry had increased by over £300,000, and in 1906 it had increased upon that by £200,000 more, and it is believed that there has been a further considerable increase in 1907. What might it not yield if it were as popular as grazing and cattle dealing? It could be doubled in value, bringing millions more into the country, and you would hardly feel that this had taken place. You would not notice the extra hens about the farm.

THIS POLICY REQUIRES LABOUR.

Now, poultry and pigs are among the most profitable animals that can be kept on small farms, but pigs and poultry cannot be fed on grass; their profitable production is intimately connected with the use of the plough. This is the point I want to enforce; and the statement applies equally to the production of milk and butter. Labour, labour, give more labour to the land and you will enrich yourselves and your country. I would recommend to your study the remarkable experiments published in the current number of the *Journal* of the Department,* which furnish some illustrations of what might be done in increasing the profit of the land by the application of a little more labour and better methods. The experiments in sprouting and boxing potatoes—I do not mean early potatoes, but the ordinary late potato crop—a series of experiments carried on every year for the past five years in all parts of the country including Tipperary here, have proved that seed which has been sprouted will yield, on an average, two tons per acre more than unsprouted seed. The average yield of the sprouted seed was over 11 tons to the acre. Two tons per acre, that is, on a low estimate, £4 per acre more got out of your potato crop. But the figures mean more than this, for the average yield of potatoes over Ireland is 3·8 tons. You will see from the agricultural returns that many growers in the country, not connected with these experiments at all, by giving more care and labour to the land, got 10 tons to the acre. There are similar experiments with regard to oats, mangels, and turnips, which point the same moral. I must pass from this branch of my subject—on which so much more might be said—by giving you a single illustration of the importance of the agricultural industry to the country.

WITH MORE LABOUR THE FARMERS CAN ADD IMMENSELY TO THE COUNTRY'S WEALTH.

Agriculture is far and away the greatest of all our industries, and however desirable and valuable other industries may be, it must remain—and

* The *Journal* of the Department for January, 1908. (Vol. VIII., No 2.)

I am glad to think it must remain—always the great industry of Ireland. What I want to make clear is the fact, which writers and speakers on the question of the need for new industries again and again overlook, that without the creation of any new industry, there is a living for a far greater population if all set to work and developed the existing industry which is here lying to their hand. There are 15,000,000 acres of cultivable land in Ireland. We have just seen that with better cultivation it is possible in one crop to make the land yield £4 an acre more than it is now doing, and there are similar results with other crops. I believe I shall be well below—very much, indeed, below—the possibilities if I say that with better cultivation it is possible to get 10s. an acre more out of these 15,000,000 acres of cultivable land. Just reflect on that— $7\frac{1}{2}$ million pounds per annum added to our wealth. All the rural industries we could start within the next fifty years would not bring us anything like that annual return; yet it is in the power of the farmers of Ireland, by putting labour into the land, to give us that return. And remember how the return from agriculture reacts upon all other interests. Wherever there is a good agricultural district there are thriving agricultural towns and villages, and the blacksmith, the carpenter, the mason, the draper, the grocer, the miller, the local manufacturer, as well as the farmer and the labourer share in the benefits the well-cared soil has yielded. Here, then, is an undeveloped industry ready to hand through which millions of money now going to other lands can be easily and quickly diverted to this country with the employment of a comparatively small increase in capital.

QUALITY OF LABOUR AFFECTED BY QUALITY OF EMPLOYMENT.

The chief capital wanted is labour. The whole system,—the development of tillage, winter dairying, and intensive agriculture,—depends more than anything else on labour. Now, I may be told this labour is scarce, and what there is of it is bad. This is what we hear on every side, is it not? In fact, this is the whole question. Well, let us see. We will consider the question of scarcity first. There is no doubt that in one sense it is scarce. When the farmer in hay-time or harvest wants to hire a labourer for a few weeks, not having employed him at any other time during the year, he finds it hard to get one, and when he does he has to pay him smart wages. But that is a casual job, and how is that labourer to live for the remainder of the year if the farmer does not want him? This touches the secret of the so-called scarcity. How can we talk of a dearth of labour when in the same breath we are

lamenting the fact that the youth of the country, the brawn and the muscle of the land, are leaving it for want of employment, and the cry is everywhere for industries to keep them at home ! Have you ever considered that 25,000 Irish labourers go over to England and Scotland every year for several months, and that that is the very best of labour which all the employers of it praise ? Dr. Kelly, the Bishop of Ross, advised the County Limerick farmers recently, if they could not find labourers near them to advertise in the Cork and Kerry newspapers and offer decent terms, and he guaranteed they would have plenty of replies. But labour, it is said, is not only scarce, but it is of poor quality. Now, that is true, too ; and, again, there is a reason for it. Most of the labour now being given to Irish farmers is not worth more than the wage which is being paid for it ; very often it is not worth so much. It is wretched, listless, inefficient eye-service. I know that perfectly well. I have too often seen labour which is enough to drive a farmer to despair. That is the worst part of the problem, and it is the one which must present the greatest difficulty to your minds as you listen to me. But before I go into the matter further, let me quote you something to show you what Irish agricultural labour can become if given the right encouragement.

WHAT IRISH LABOURERS CAN DO.

I could give you many testimonies. I have met English and Scotch farmers who employ Irish labour every year, and it is no exaggeration to say that they grow positively enthusiastic about the qualities of the work given them by these boys and girls from the poorest western districts. If you will turn to our reports on the migratory labourers you will see striking evidence to this effect. But what I want to quote you is the latest testimony of the kind I have met. We had before us at the Forestry Committee recently Mr. Munro Ferguson, and he gave as one of his reasons why he thought forestry should pay in Ireland the excellence of Irish labour. Mr. Munro Ferguson is one of the greatest landowners of Scotland, and here is what he said : "In the East of Scotland a great part of the agricultural work is done by workers from Ireland, who come over mostly from Mayo and Sligo. They are the best labourers that we know—extraordinarily conscientious workers. My tenants generally have the same men year after year. They send a telegram, and ask you if you are ready, and come over and stay with you through the hay harvest and the corn harvest, and now they do all the turnip lifting. There is no labour like them. My experience of them is—we are supposed to work fairly hard in Scotland, but I heard

one of my best tenants say that he liked to have one or two Irishmen about him to keep his men up to the mark." Note that the Scotch labourer with whom the poor Irish worker is thus compared is employed all the year round, is well educated and well paid, and is looked on as perhaps the finest type of agricultural labourer in the world. How comes it that the Irish labourer, who gives such good work in Scotland and England gives, as a general rule, such inferior work at home? How comes it that it pays the Scotch farmer to have him as well as his own permanently and highly paid Scotch labourer, and that it does not pay the Irish farmer to have him? If you search out the answers to these questions—and they are not exactly obvious—you will have a good deal of light on the problem of Irish agriculture.

GIVE REGULAR WORK AND PAY FOR QUALITY.

How is the remedy to be sought for a state of things which is so manifestly wrong? One cause of the trouble is that at present the labourer has too little interest in the farm on which he works. The system of providing him with a cottage and plot, with no reference to the particular farm where he may get work, tends to divorce him from direct connection with the farmer. Sometimes his cottage is placed where there is no work available. The natural thing to expect if all were right would be that farmers would welcome, and even compete for, the erection of labourers' cottages on their land. We know how different is the feeling, and that feeling has its explanation. One of the drawbacks of the labourers' cottage system is that it often imposes on a farmer not only an inferior workman, but it may be an undesirable neighbour. The system should give the farmer some choice, and it does not. Such a state of affairs cannot make for friendly relations between the two classes, and the first point to be secured is that not only friendly but intimately friendly relations should be established between them. There can be no progress or contentment until this fact is recognised in full. I venture to say that the chief reason why labour is now found to be scarce, is that there is no regular employment for it all the year round. It is but natural that the demand should precede the supply. Again, if the farmer pays for his labour according to skill and intelligent and zealous work, giving more to a good worker than a bad worker, the quality of the labour will improve. This system of discrimination and rewarding quality and zeal I would recommend particularly to your consideration; and, pray, remember all the time I am not dogmatising, but only suggesting something for your study and consideration, which your own judgment and knowledge can better decide. Besides, I am

speaking to the farmers now, and not to the labourers. If I were addressing the labourers I would have a good deal to say about their side of the bargain. I will only say this in passing : there must clearly be concession on both sides. The labourer must recognise the uselessness to the farmer of unskilled and unconscientious service ; he must be prepared to respond to good treatment. But the farmer is the predominant partner in the work of agricultural development, and it is his privilege to take the first step in bringing about reform.

THE LABOURER SHOULD BE INTERESTED IN THE FARM.

Let us consider for a moment the question of skill. This is, no doubt, the greatest of all the difficulties. The present agricultural labourer, through no fault of his own, is not a skilled workman. Owing to the decline of tillage he has had few opportunities for practice, and through this and other causes he has lost the farm-lore of his predecessors. One of the most striking things, which must be within the experience of you all, is the contrast between an old man of the labouring class and a young labourer. The immense superiority in every respect, and especially in technical skill, of the old man, is most suggestive. The Irish agricultural labourer in the past was a man of great skill and resource. Like Matt the Thresher in *Knocknagow*, he could turn a hand to almost anything, from soleing a pair of brogues to roofing and thatching a barn. It is for the good of the farmer as well as of the whole countryside that we bring back that skill to the agricultural labourer, and in my opinion the best of all ways of doing this is for the farmer to make it worth the labourer's while to acquire the skill. There is such a thing as latent knowledge, and this knowledge is to a large extent latent amongst the agricultural labouring class, and is waiting but an incentive to call it out and develop it. If the labourer is paid for the interest he shows in the farm, as well as for his actual labour, it makes a different man of him. It gives a new interest to his own life which is profitable to the farmer. If he is made to think about the management of the land and stock, it brings his brain as well as his hand to his master's service. A good ploughman should be a sort of steward to the farmer. He should put the needs of his employer before all other ordinary considerations, and feel about the farm as if it were his own. It should be his pride to excel in his work and to understand the object and reason of every operation. A skilled, knowledgeable farm labourer needs but few directions from his employer. Indeed, there are cattlemen and ploughmen who have acquired such a knowledge of their business that they can teach their employer, and, to all intents

and purposes, run the farm. It is difficult to estimate the real value of such workmen ; unfortunately they are now very scarce. But among the unskilled labourers of to-day, I repeat, there are yet men of the right stamp who are the makings of such workers, and whose qualities can be brought out by considerate and preferential treatment. Such men bring money to the farm, and to bind them to his service ought to be the farmer's study.

FEED THE LABOURER'S FAMILY AS WELL AS THE FARMER'S OFF THE FARM.

As a means of strengthening further this bond and giving the labourer a greater interest in the farm, I would suggest also for your consideration the idea of the farmer feeding the labourer off the farm, or, in other words, paying him partly in kind. No intelligent workman can be contented to see his family reared after the manner of the unattached independent labourer with a cottage and occasional labour at 9s. to 11s. a week. He wants his children to grow up healthy and strong, fit to earn their living as soon as possible, and he and his family, as well as the farmer and his household, ought to be fed as far as possible with the products of the farm. One of the first and best results of an improved system of agriculture would be that the farmer would make the production of food for his stock and his household the first business of his farm. Thus he would put an end to the waste of money on foreign foodstuffs, and change for healthy nourishment the miserable dietary which is now accountable for so much of the physical and mental degeneration going on amongst our people. There are parts of Ireland still where the local meal mill is not in ruins, and where the farmer, if he is not a grower of oats and wheat for sale as such, grows at least enough to supply his family and dependants with oatmeal and whole wheat-meal. This system might be applied here. The difficulty of running the mill, if undertaken on co-operative lines, cannot be any greater than that of running a creamery. Oatmeal, wheatmeal, eggs, flour, bacon, milk, butter, cheese, potatoes, fruit, and vegetables can be produced of the best off the farm. The labourer should get his share of this produce. Milk, meal, and potatoes at least should be supplied him from the farm, and recorded at cost price as part of his payment. Of milk his family often have none at all, unless he keeps a goat, to the annoyance of his neighbours and the destruction of the fences. The labourer's plot will be wanted for the pig and the fowl, and for a vegetable garden, and should be confined to that use. At present the

labourer, with his irregular employment, is often at work on his plot preparing for potatoes when he is urgently wanted on the farm in the spring. A well-fed, contented man, driving his team or otherwise occupied, as circumstances demand, putting skilled labour into the land, will extract many times more wealth from it than can be done if he spends the critical time of the year for the crop in digging his potato patch. And if his children are being reared about the farm, instead of being kept as far as possible from it, let me tell you it will make its mark on the next generation of labourers. It is thus the training of the skilled farm hand really begins, and he absorbs, as it were through his pores, the farmyard and field lore which makes his service so valuable. To sum up, let me make it clear that I do not suggest that the occupiers of land are to be required to employ more hands than the farm when well tilled can profitably employ. Neither should they be required to find work for the careless, inattentive workers, or to provide an increased scale of pay all round. The plea I put forward is, that the most should be made out of the land; that the labourer's position must be improved if this is to be done; and that it is the duty of the farmer to make the first move by recognising workmen who are worth more, and bringing out the best that is in them, and by making arrangements for feeding the labourer and his family as far as possible off the farm.

A LAST WORD.

Well, my friends, I have so far been addressing you in the spirit of the economist and the calculator; but though Edmund Burke, when he spoke of the advent of that sort of person, said the age of chivalry was gone, meaning thereby that people would no longer be influenced by any but sordid considerations, I don't think he was right in that. Men are still moved by generous feelings, as they have always been, and especially are men of such traditions as yours. I have put before you to-day a most difficult problem, one which closely affects yourselves as well as another class of men whose interests, if it could be possible, ought to be made one with yours. It is full of difficulties—one of the worst of them the difficulty of the farmer having no choice as to the man who is to occupy the cottage near him; it bristles with difficulties; it is not a thing that can be settled off-hand. But you will be helped in settling it if you can invoke that fine spirit with which Tipperary in the past was always able to meet big questions. It is the spirit in which such a thing is met that is the real solvent. The right spirit has a magical effect upon the difficulties. If I were talking to the labourers—and perhaps I may

have a chance of saying a word to them some day—I would urge them to show the right spirit too. But I am talking to the farmers now, and I ask you in this matter to let the heart help the head, and to think upon the other man not only as a fellow-man, with all his troubles, and a fellow-Irishman, with all his aspirations like your own, but also, in a very real sense in this case, as a brother. You all know *Knocknagow*, that wonderful book which ought to be a sort of second Bible in Tipperary homes, and to whose beloved author you have set up so beautiful a monument in this town. The hero of *Knocknagow* is an agricultural labourer, Matt the Thrasher, and it is Matt who sings the peasant farmer's song, "for the time to come"—the time which has come, remember—a song which I defy you to read with dry eyes, in which Kickham describes the hopes and extols the virtues of the "poor honest man." Fellow-Tipperarymen, Kickham did not dream, those who went before us in the struggles of this noble county, and who fought for your emancipation in harder times than these, those whose names, and, I hope, whose spirit we are proud to inherit, did not dream of an Ireland or of a Tipperary in which Matt the Thresher should be an outcast. No, we have many things to do for Ireland yet, and in many ways before she reaches the goal those men saw before her. This thing is one of them, and I put it to Tipperary to take the lead in it. Give the rest of Ireland an example in dealing with this really national and human question, and exercise again those splendid qualities which won pre-eminence for Tipperary in the past, and made her sons rejoice to hear her called the premier county.

FLAX EXPERIMENTS, 1906.

I. MANURIAL EXPERIMENTS.

The first series of experiments on the manuring of the flax crop conducted by the Department during the years 1901 to 1904,* inclusive, demonstrated that, as regards artificial manures, potash should be the dominant, if not the sole, manurial ingredient in those used for flax. In 1905† the scheme of manurial experiments was therefore so modified that the results should afford evidence bearing on the following questions:—

- (1) What is the best form in which to apply potash for the flax crop?
- (2) At what time of the year is the manure best applied?
- and (3) May a dressing of a potash manure be profitably supplemented by a slow-acting nitrogenous manure?

In 1906 the plan of the trials was identical with that adopted in 1905, and comprised (1) tests of three potash manures, viz., kainit, muriate of potash, and sulphate of potash, (2) application of manures in winter and at sowing time, and (3) a test of kainit supplemented by a quantity of a slow-acting nitrogenous manure in the form of rape meal. Plot 1 received no manure, and the other plots were treated as follows:—

Plot 2.—Kainit, at the rate of 6 cwt. per statute acre, applied in winter.

Plot 3.—Kainit, at the rate of 6 cwt. per statute acre, applied at time of sowing seed.

Plot 4.—Muriate of potash, at the rate of $1\frac{1}{2}$ cwt. per statute acre, applied in winter.

Plot 5.—Muriate of potash, at the rate of $1\frac{1}{2}$ cwt. per statute acre, applied at time of sowing seed.

Plot 6.—Kainit, at the rate of 3 cwt., and rape-meal, $2\frac{1}{2}$ cwt. per statute acre, applied in winter.

Plot 7.—Sulphate of potash, at the rate of $1\frac{1}{2}$ cwt. per statute acre, applied at time of sowing seed.

* See *Journal*, Vol. II., pp. 636 *et seq.*; Vol. III. pp. 663 *et seq.*; Vol. IV., pp. 616 *et seq.*; Vol. V., pp. 449 *et seq.*

† See *Journal*, Vol. VI., pp. 250 *et seq.*

The experiments were carried out at nine centres in the counties of Donegal, Tyrone, Londonderry, and Down. The plots, each one-tenth of a statute acre in extent, were measured by an officer of the Department, and the manures and seed sown, weeding carried out, the produce pulled, retted, spread, and stacked under his supervision. At eight centres the experiments were carried out under the auspices of the local Co-operative Flax Society, and the retted straw was scutched in the mills of these respective societies, also under the supervision of the Department's officer. The scutched flax was finally sent to Belfast, and there valued by three buyers appointed by the Flax Spinners' Association, who again placed their services at the disposal of the Department for this purpose.

During the first two weeks of April the weather conditions were most favourable for the preparation of the land and sowing of seed. Excellent seed-beds were therefore obtained at the outset. This fine weather was succeeded by a cold and wet spell, and, though sowing was not completed until 11th May, it was not then possible to get in the flax under most desirable conditions. The weather during the succeeding period, though very changeable, was, on the whole, favourable to the growth of the crop. As is usually the case, however, where a good seed-bed was not obtained, only a light yield of scutched flax was produced.

Riga Child seed was sown on each plot at the rate of 60 quarts per statute acre. The dates of sowing the manures and seed and pulling the flax at each centre are given in the following statement:—

CENTRE.	Date of Sowing Kainit, Muriate of Potash and Rape Meal. Plots, 2, 4 and 6.	Date of Sowing Kainit, Muriate of Potash and Sulphate of Potash, Plots, 3, 5 and 7, and of sowing Flax Seed.	Date of Pulling.
	1906.	1906.	1906.
Sion Mills,	21st February,	9th April,	August 6th.
Urney,	25th January,	10th "	" 8rd.
Castlefinn,	22nd February,	11th "	" 3rd and 4th
Riverfinn (Lisecooly),	22nd February,	14th "	" 9th.
Stranorlar,	23rd February,	19th "	" 13th.
Letterkenny,	6th March,	20th "	" 4th.
Dromara,	27th January,	4th May,	" 13th and 14th.
Macosquin,	27th February,	10th "	" 17th.
Dunboe,	9th February,	11th "	" 14th.

At Sion Mills where the seed was sown under most favourable conditions all plots grew well. The very heavy rain which fell early in July caused the crop on all plots excepting that unmanured, to lodge

with the result that although a very heavy crop of good quality fibre was obtained from the manured plots the straw from the unmanured plot gave a still higher yield, as will be seen from the results printed in the table below. The returns from this centre have not therefore been taken into account in summarising the results of the 1906 manurial experiments. Neither are the returns from the Dunboe centre reasonably reliable from an experimental point of view. The soil of the field at Dunboe is of a stiff, heavy character; great difficulty was experienced owing to heavy showers in securing even a moderately suitable seed-bed until late in the season (11th May); and finally, when the seed was sown, further rain caused the fine particles of soil to run together, germination was uneven, and a stunted crop resulted. The returns from this centre are given below, but they also are not taken into account for the purposes of this report.

TABLE I.—Showing details of the Produce of Plots at Sion Mills and Dunboe which, for reasons shown in the text, are not included in the average returns given in Table II.

Centre—SION MILLS, Co. Tyrone.

Plot No.	Yield of Retted straw per statute acre.	Yield of Scutched Flax per statute acre.	Assessed value of Scutched Flax per stone.	Value of Scutched Flax per statute acre.	Value of Coarse and Fine Tow per statute acre.	Total value of Scutched Flax and Tow per statute acre.
	lbs.	st. lb.	s. d.	£ s. d.	s. d.	£ s. d.
1	4,150	59 9	8 6	25 7 0	9 9	25 16 9
2	4,480	51 1	8 3	21 1 4	7 7	21 8 11
3	4,500	52 2	8 1½	21 3 8	11 8	21 15 4
4	4,490	58 13	8 4½	24 13 6	10 1	25 3 7
5	4,510	57 12	8 6	24 11 10	11 5	25 3 3
6	4,550	55 0	8 4½	23 0 8	8 5	23 9 1
7	4,580	53 3	8 0	21 5 9	11 5	21 17 2

Centre—DUNBOE, Co. Londonderry.

1	1,260	10 10	7 0	3 15 0	5 11	4 0 11
2	1,450	12 2	7 1½	4 6 6	6 0	4 12 6
3	1,370	10 10	7 0	3 15 0	5 11	4 0 11
4	1,470	12 2	7 3	4 8 1	5 9	4 13 10
5	1,190	8 8	7 0	3 0 0	5 0	3 5 0
6	1,380	11 6	7 1½	4 1 5	7 3	4 8 8
7	1,420	10 0	7 0	3 10 0	8 5	3 18 5

Full details as to the returns from each plot at the remaining seven centres are shown in Table II. (pages 426 and 427), and the subsequent portion of this report deals only with the returns included in this table.

TABLE II.—Showing the Results from the application

NO. OF PLOT.		1.		2.		3.	
MANURES APPLIED PER STATUTE ACRE.		No Manure.		6 cwt. Kainit, applied during Winter.		6 cwt. Kainit, applied at time of sowing the Seed.	
Name of Co-operative Flax Society conducting the experiment.	Character of Soil.	Retted Straw.	Scutched Flax.	Retted Straw.	Scutched Flax.	Retted Straw.	Scutched Flax.
Castlefinn, Co. Donegal.	Medium loam; gravelly sub-soil.	lb. 2,310	lb. 370	lb. 2,600	lb. 480	lb. 2,940	lb. 530
Stranorlar, Co. Donegal.	Medium loam; gravelly sub-soil.	2,190	340	2,410	350	2,210	280
Letterkenny, Co. Donegal.	Medium loam; clay subsoil.	2,490	370	2,660	420	2,380	380
Urney, Co. Tyrone.	Medium loam; clay subsoil.	2,610	410	2,790	440	2,350	450
Dromara, Co. Down.	Medium loam; gravelly sub-soil.	2,980	430	3,490	520	3,330	580
River Finn (Lisacooly), Co. Donegal	Medium loam; gravelly sub-soil.	3,270	535	3,440	600	3,680	640
Macosquin, Co. Londonderry.	Medium loam; clay subsoil.	1,100	120	1,430	195	2,180	330
Average yield of Retted Straw per acre.		2,421 lb.		2,689 lb.		2,364 lb.	
Average yield of Scutched Flax per acre.		26 st. 4 lb.		30 st. 9 lb.		32 st. 8 lb.	
Percentage of Scutched Flax from Retted Straw.		15.2		15.95		15.92	
Average Value of Scutched Flax per stone.*		6s. 9½d.		7s. 1d.		7s. 1½d.	
Average Returns from Scutched Flax per acre.		£9 3s. 9d.		£11 0s. 8d.		£11 17s. 2d.	
Average Returns from Tow per acre.		6s. 3d.		5s. 10d.		6s. 10d.	
Total Average Returns from Flax and Tow per acre.		£9 10s.		£11 6s. 6d.		£12 4s.	
Cost of Manure per acre.		—		15s.		15s.	
Profit per acre from use of Manure.		—		£1 1s. 6d.		£1 19s.	

* The flax grown on each plot at each centre was valued separately.

of different Manures to the Flax Crop (1906).

4.		5.		6.		7.		REMARKS.
1½ cwt. Muriate of Potash, applied during Winter.		1½ cwt. Muriate of Potash, applied at time of sowing Seed.		3 cwt. Kainit, 2½ cwt. Rape Meal, applied during Winter.		1½ cwt. Sulphate of Potash, applied at time of sowing Seed.		
Retted Straw.	Scutched Flax.	Retted Straw.	Scutched Flax.	Retted Straw.	Scutched Flax.	Retted Straw.	Scutched Flax.	
1b.	1b.	1b.	1b.	1b.	1b.	1b.	1b.	The plots at this centre were infested with charlock and were sprayed to eradicate this weed. (See text.)
3,080	585	3,290	660	3,450	660	3,230	620	
2,240	340	2,080	330	2,430	360	2,560	420	
2,360	370	2,470	390	2,720	450	2,300	370	
3,210	500	3,180	495	3,670	590	3,170	520	
3,710	565	4,020	555	3,740	550	3,710	530	
3,920	670	3,140	540	3,430	565	3,180	510	
2,300	355	2,400	370	2,160	390	2,340	370	When the flax was sown at this centre the seed-bed was fairly fine, but subsequent rain caused it to run together.
2,974 lb.		2,940 lb.		3,127 lb.		2,927 lb.		
34 st. 7 lb.		34 st. 1 lb.		36 st. 4 lb.		34 st. 1 lb.		
16' 24		16' 22		16' 21		16' 29		
7s. 1d.		7s. 3½d.		7s. 3½d.		7s. 2d.		
£12 9s. 0d.		£12 12s. 3d.		£13 9s. 3d.		£12 5s. 10d.		
7s. 1d.		7s. 2d.		6s. 10d.		6s. 1d.		
£12 16s. 1d.		£12 19s. 6d.		£13 10s. 1d.		£12 11s. 11d.		
12s. 6d.		12s. 6d.		£1		13s. 9d.		
£2 13s. 7d.		£2 16s. 11d.		£3 6s. 1d.		£2 8s. 2d.		

These figures represent the averages of the valuations.

A summary of the results of the 1906 and previous years' experiments is given in Table III. below.

TABLE III.—Showing estimated PROFIT or LOSS per Statute Acre due to the use of MANURES applied to the FLAX CROP in 1901, 1902, 1903, 1904, 1905, and 1906.

Manure.	Quantity per Statute Acre.	1901.	1902.	1903.	1904.	1905.	1906.
Kainit.	{ In 1901 5 cwt. In other years 6 cwt. }	2s. 3d. profit.	16s. 3d. loss.	7s. 3d. profit.	7s. 4d. profit.	{ *£1 3s. 2d. profit. £1 10s. 8d. profit. }	{ *£1 1s. 6d. profit. £1 19s. profit. }
Muriate of Potash.	{ In 1901 1 cwt. In 1902, '03, '05 and '06 1½ cwt. In 1904 1½ cwt. }	£1 6s. profit.	4s. 2d. loss.	17s. 1d. profit.	1s. profit.	{ *£2 5s. 6d. profit. £1 5s. 8d. profit. }	{ *£2 13s. 7d. profit. £2 16s. 11d. profit. }
Sulphate of Potash.	{ 1½ cwt. in 1904 and '05. 1½ cwt. in 1906. }	—	—	—	13s. 2d. profit.	12s. 9d. profit.	£2 8s. 2d. profit.
Kainit and Rape Meal.	3 cwt. Kainit and 2½ cwt. Rape Meal.	—	—	—	—	* £1 13s. 11d. profit.	* £3 6s. 1d. profit.
Salt.	4 cwt.	—	£1 9s. 3d. loss.	2s. 9d. loss.	—	—	—
Kainit and Superphosphate.	3 cwt. of each.	£1 9s. 7d. loss.	£1 4s. 6½d. loss.	11s. 7d. loss.	14s. 6d. loss.	—	—
Kainit, Superphosphate, and Sulphate of Ammonia.	{ 3 cwt. each of Kainit and Superphosphate, 1 cwt. of Sulphate of Ammonia. }	£2 2s. 8d. loss.	£2 2s. 1½d. loss.	6s. 9d. profit.	£1 4s. 3d. loss.	—	—
Rape Meal.	5 cwt.	—	£3 8s. 10d. loss.	2s. 11½d. loss.	—	—	—
Basic Slag.	5 cwt.	—	£1 18s. 7d. loss.	14s. 3d. loss.	—	—	—

* Manure applied during winter.

It was again noticed that on the manured plots, which all received potash in some form, no yellowing took place, though this diseased appearance of the young plants on the unmanured plots was to be observed at some centres. As in the previous year, the plot dressed with rape meal and kainit appeared generally to carry the greatest bulk of green flax, and, as will be shown below, this mixture of manure proved the most profitable.

At the Urney centre when the flax braided it was observed that the crop was infested with charlock, or preshaugh. The plots there were accordingly sprayed with a 3 per cent. solution of sulphate of copper when the young flax was three or four inches high. This treatment was quite effectual in killing the weed, and though the Department are not yet, from the results of this and other tests which have come to their notice on the spraying of charlock in flax, in a position to advise flax-growers to adopt this treatment for crops infested with this weed, they would recommend that in the case of flax crops where charlock is largely present a trial of spraying with sulphate of copper be made on a small area according to the directions given in leaflet No. 6, on Charlock Spraying, and that growers should be guided by the results of such a trial.

EFFECT OF KAINIT.

A.—*Winter Application.*

Scutched flax per statute acre from unmanured plot,	26 st. 4 lb.
Scutched flax per statute acre from kainit plot (early application),	30 st. 9 lb.
Estimated profit per statute acre from use of kainit applied in winter,	£1 1s. 6d.

Kainit was applied, at the rate of 6 cwt. per statute acre, to plot 2 at each centre some two or three months before the flax was sown. The effect of this dressing was to increase the yield of straw and scutched flax at each of the seven centres. The average returns from these plots compared with those from the unmanured plots show that in addition to increasing the yield of scutched flax, the application resulted in a higher quality of flax being produced, and that in consequence an extra profit of £1 1s. 6d. remained after deducting the cost of the manure.

B.—*Spring Application.*

Scutched flax per statute acre from unmanured plot,	26 st. 4 lb.
Scutched flax per statute acre from kainit plot (spring application),	32 st. 8 lb.
Estimated profit per statute acre from use of kainit applied in spring,	£1 19s. 0d.

The effect of an application of a like amount of kainit, *i.e.*, 6 cwt. per statute acre, to plot 3 at the time of sowing the seed is, however, not quite so uniform. It gave an increased yield of straw over the respective unmanured plots at six centres of the seven, and also more scutched flax at six centres. The average returns (Table II.) show that the quality of the fibre was better than that from the unmanured plots, and that there remained an increased profit of £1 19s. 0d. per statute acre.

A comparison of the returns from plot 2 (kainit, winter application) with those from plot 3 (kainit, spring application) shows that at five of the seven centres the application of the manure in spring gave better yields both of straw and scutched flax. The averages for all the centres are also in favour of spring application, and, though there is little difference in the quality of the fibre produced, the increased profit per acre over that resulting from the earlier application is 17s. 6d. In this respect the 1906 trials bear out the results of the tests carried out in the previous year.

EFFECT OF MURIATE OF POTASH.

A.—*Winter Application.*

Scutched flax per statute acre from unmanured plot, .	26 st. 4 lb.
Scutched flax per statute acre from muriate of potash plot (early application),	34 st. 7 lb.
Estimated profit per statute acre from use of muriate of potash applied in winter,	£2 13s 7d.

A dressing of $1\frac{1}{4}$ cwt. of muriate of potash per statute acre, as given to Plot 4 during the winter prior to the sowing of the flax seed gave an increase over the unmanured plot of straw at six centres and of scutched flax at five centres, whilst at the remaining two centres the weights of flax yielded by the respective Plots 1 and 4 are identical. On the whole this application has produced a marked increase in straw, scutched flax, proportion of scutched flax to straw and value of scutched flax, and leaves a further profit as compared with the unmanured plot of £2 13s. 7d. per statute acre.

B.—*Spring Application.*

Scutched flax per statute acre from unmanured plot, .	26 st. 4 lb.
Scutched flax per statute acre from muriate of potash (spring application),	34 st. 1 lb.
Estimated profit per statute acre from use of muriate of potash applied in spring,	£2 16s. 11d.

The same amount of muriate of potash as was given to Plot 4 in the preceding winter was applied at seed-time to Plot 5, although, compared with the unmanured plot, this resulted in an increased yield of straw at four, there was a higher yield of flax at six of the seven centres. The quality of the flax from Plot 5 is, moreover, much better than that from Plot 1, and, owing to this factor and the increased yield, there remains, after deducting the cost of the manure, an extra profit of £2 16s. 11d. per acre.

In the previous year the winter application of muriate of potash produced a return of practically £1 per acre more than the application at seed-time. In the year now under review, however, although a slightly lower average yield of flax resulted from the spring application, the quality of this flax was better, and in consequence the net return is in favour of the manure sown with the seed by 3s. 4d. per acre.

EFFECT OF A MIXTURE OF KAINIT AND RAPE MEAL.

Scutched flax per statute acre from unmanured plot, .	26 st. 4 lb.
Scutched flax per statute acre from kainit and rape meal (early application),	36 st. 4 lb.
Estimated profit per statute acre from use of kainit and rape meal applied in winter,	£3 6s 1d.

On Plot 6 at each centre a dressing of 3 cwt. kainit and $2\frac{1}{2}$ cwt. rape meal has markedly increased the yield of straw and fibre. The average returns from Plot 6 show the highest figures for straw and scutched flax of the series. The mean assessed value of the fibre was higher than that from any other plots excepting those receiving muriate of potash at seed-time, which produced fibre of the same average price. This mixture of manures produced an added net profit of £3 6s. 1d. per statute acre, the highest return from the use of any manure in the 1906 experiments.

EFFECT OF SULPHATE OF POTASH.

Scutched flax per statute acre from unmanured plot,	26 st. 4 lb.
Scutched flax per statute acre from sulphate of potash plot (spring application),	34 st. 1 lb.
Estimated profit per statute acre from use of sulphate of potash applied in spring,	£2 8s. 2d.

To Plot 7 was applied, per statute acre, $1\frac{1}{4}$ cwt. of sulphate of potash, which contains approximately the same amount of potash as was given in the form of kainit to Plots 2 and 3, and in the form of muriate of potash to Plots 4 and 5. Although the sulphate of potash increased the amount of straw and fibre at only five centres of the seven, the average yield is much higher than on the unmanured plots. Furthermore, the proportion of fibre to straw is higher on Plot 7 than on any others, and the value of the fibre produced is also enhanced as compared with the unmanured plot. The extra profit from the use of sulphate of potash is £2 8s. 2d., *i.e.*, less than the profit due to the application of muriate of potash, but greater than that due to a dressing of kainit. In 1904, this manure gave better returns than kainit or muriate of potash, but in 1905 the two latter proved more profitable than sulphate of potash.

GENERAL SUMMARY.

(1.) In 1901, 1902, 1903, 1905 and 1906 a dressing of muriate of potash has proved more suitable for the flax crop than an application of kainit supplying the same quantity of potash. Sulphate of potash has now been tested for three years, and in two seasons has given better returns than kainit, and in one season better than muriate of potash. Pending the results of further experiments, however, the Department would advise flax-growers to give preference to muriate of potash. To facilitate the even distribution of a small quantity of this manure ($1\text{--}1\frac{1}{4}$ cwt. per statute acre), it may be mixed with sand, fine soil, or sawdust, and its bulk so increased.

(2.) As regards the best time for the application of the manure, the evidence afforded by the experiments of 1905 and 1906 is not sufficiently

definite to warrant any conclusion on this point. Further experiments so planned as to afford more information regarding this question are now in progress.

(3.) The application of a mixture of kainit and rape meal left a substantial profit in 1905 and also in 1906. The results of these preliminary trials would, therefore, serve to show that in some seasons, if not generally, a potassic manure may be profitably supplemented for the flax crop by a slow-acting nitrogenous manure.

II.—SEED TRIALS.

A.—*Variety Tests.*

(i.) GENERAL.

These experiments comprised trials of the following varieties at each of eight* centres :—

Dutch—(1) Riga Child, imported from Holland by the Department.

(2) A Belfast brand of Dutch seed.

Riga—(1) Pernau Crown, imported from Russia by the Department.

(2) A Belfast brand of Riga seed.

At each centre the plots were one-tenth of a statute acre in extent. They were seeded at the rate of 60 quarts and were manured with sulphate of potash at the rate of $1\frac{1}{4}$ cwt. per statute acre. An officer of the Department supervised all operations in connection with the preparation of the land, sowing, and after treatment of the crop, and the produce of each plot was separately valued in Belfast by a committee of buyers appointed by the Flax Spinners' Association.

Full details as to the yield of each plot at each centre, and also the average returns from the eight centres, are given in Table IV. (page 433), from which it will be seen that on the whole each of the Dutch varieties gave better returns than either of the Russian varieties ; that the Dutch seed imported by the Department produced a higher yield of straw and fibre at five centres of the eight, but that the average returns are in favour of the seed bought in Belfast ; and that at six centres, and also on the average, the Pernau Crown seed proved more profitable than the Riga seed bought in Belfast.

These results, though perhaps not as uniformly regular when the returns from the respective centres are compared, still bear out the statement made in the previous year's report, that no guidance as to choice of seed—Riga or Dutch—is afforded by the character of the soil and subsoil, light or heavy.

* These trials were also conducted at a ninth centre, Dunboe, Co. Derry. The results, however, were not reliable, for the reasons mentioned in the preceding portion of this report.

TABLE IV.—Showing the Returns from Trials of Different Varieties of FLAX SEED (1906).

No. of Plot		1.		2.		3.		4.		REMARKS.
VARIETY OF SEED TESTED.	Centre.	Dutch. (Riga Child.)		Dutch. (Belfast Brand.)		Riga. (Pernau Crown.)		Riga. (Belfast Brand.)		
		Rett'd Straw.	Scutched Flax.	Rett'd Straw.	Scutched Flax.	Rett'd Straw.	Scutched Flax.	Rett'd Straw.	Scutched Flax.	
Character of Soil.		lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	
Castletinn, Co. Donegal.	• Medium loam : gravelly subsoil.	3,230	620	2,940	570	3,080	580	2,840	510	{ The plots at this centre lodged after heavy rains in July.
Ston Mills, Co. Tyrone.	• Heavy loam : sandy subsoil.	4,560	745	4,290	740	3,800	695	3,920	710	
Stranorlar, Co. Donegal.	• Medium loam : gravelly subsoil.	2,560	420	2,960	490	2,660	420	2,640	100	
Letterkenny, Co. Donegal.	• Medium loam : clay subsoil.	2,300	370	2,490	420	2,380	380	2,560	410	
Urney, Co. Tyrone.	• Medium loam : clay subsoil.	3,170	620	4,170	680	3,410	560	3,510	470	
Dromara, Co. Down.	• Medium loam : gravelly subsoil.	3,710	530	3,520	485	3,830	505	3,160	415	{ When the flax was sown at this centre the seed bed was fairly fine, but subsequent rain caused it to run together.
River Finn (Liscooly), Co. Donegal.	• Medium loam : gravelly subsoil.	3,180	510	3,150	475	2,900	415	3,120	400	
Macosquin, Co. Derry.	• Medium loam : clay subsoil.	2,340	370	2,180	320	1,510	205	1,500	190	
Average Yield of Rett'd Straw per statute acre.		3,131 lb.		3,212 lb.		2,946 lb.		2,906 lb.		
Average Yield of Scutched Flax per statute acre.		36 st. 7 lb.		37 st. 4 lb.		33 st. 8 lb.		31 st. 4 lb.		
Percentage of Scutched Flax from Rett'd Straw.		16.82		16.25		15.95		16.79		
Average Value of Scutched Flax per stone.*		7s. 3d.		7s. 5d.		7s. 4½d.		7s. 4d.		
Average Returns from Scutched Flax per statute acre.		£13 8s. 4d.		£14 0s. 8d.		£12 12s. 1d.		£11 17s. 5d.		
Average Returns from Tows per statute acre.		6s. 9d.		7s. 11d.		7s. 6d.		7s. 4d.		
Average Returns from Flax and Tows per statute acre.		£13 15s. 1½d.		£14 8s. 7d.		£12 19s. 7d.		£12 4s. 9d.		

* The flax grown on each plot at each centre was valued separately. These figures represent the average of the valuations.

The results printed in Table IV must not, however, be held to prove the general superiority of Dutch seed to Riga seed. Although Dutch seed proved more profitable than Riga in 1906, this fact only goes to show that the information contained in the Department's leaflet No. 29 on Flax Sowing Seed as annually revised should be carefully taken into account by flax growers before they purchase seed. The quality of seed from Russia and Holland is, of course dependent largely upon the growth and quality of the crop from which the seed was obtained, as well as upon the influence of the weather on the actual saving of the seed. Such particulars are given in the leaflet mentioned, and for the nominal charge of 3*d.* per sample, the Department's seed-testing station determines the germination, purity, and relative weight of samples of flax seed.

(ii) SPECIAL.

Apart from the flax growing districts in Western Russia, whence comes what is termed Riga or Pernau seed, sowing seed is now saved in more easterly governments and districts of Russia and though no such seed has yet been imported by merchants into Ireland under a distinctive brand or name serving to show the origin of the seed, the Department have at times endeavoured for experimental purposes to obtain a small quantity. In 1906 they were enabled to buy the following varieties:—Kostroma, Ouglitch, and Vologda. These, however, contained a large quantity of weed seeds, light immature and discoloured pickles and dirt, and after being cleaned to a certain extent showed a low percentage of germination on being tested. They were accordingly sown in quantities, which as indicated by the germination tests were equivalent to a standard seeding of 60 quarts per statute acre of Pernau Crown seed. Trials were made at three centres where Pernau Crown seed was also sown. All the plots received a dressing of a potassic manure—sulphate of potash at Sion Mills, and kainit at the remaining two centres. All operations in connection with these tests were supervised by an officer of the Department, as in the case of the manurial trials and general variety tests, and the produce similarly valued in Belfast. Full particulars of the returns are shown in Table V. (page 435) from which it will be seen that at each centre the Kostroma seed produced a heavier crop of flax than the Pernau Crown, and the latter in turn a heavier crop on the average than the Ouglitch or Vologda seeds. In point of quality of produce there was little to choose between the three former, which were all rather superior to Vologda seed in this respect. The financial returns per statute acre are as follows:—

	£	s.	d.		£	s.	d.
Kostroma,	15	16	2	Ouglitch,	14	6	1
Pernau Crown,	14	15	3	Vologda,	11	7	6

TABLE V.—SHOWING RESULTS OF TRIALS OF VARIOUS VARIETIES OF RUSSIAN FLAX SEED, 1906.

VARIETY OF SEED.										
Name and Address of Farmer.	Character of Soil.	1		2		3		4		Remarks.
		Pernau Crown.		Kostroma.		Ouglitich.		Vologda.		
		Retted Straw.	Scutched Flax.	Retted Straw.	Scutched Flax.	Retted Straw.	Scutched Flax.	Retted Straw.	Scutched Flax.	
		lb.	lb.	lb.	lb.	lb.	lb.	b.	lb.	
Messrs. Herdmans, Limited, Sion Mills, Co. Tyrone.	Heavy loam; sandy subsoil,	3,800	695	3,810	745	3,710	700	3,190	570	—
Messrs. Teadley, Castle- roer, Coleraine.	Medium loam; clay subsoil,	2,575	380	2,705	405	2,330	340	2,550	370	—
James Crowe, Castle- roer, Coleraine.	Peaty loam; clay subsoil,	3,690	425	3,695	445	3,360	375	3,370	280	A bulky soft crop.
Average Yield of Retted Straw per Statute Acre,	...	3,355 lb.		3,403 lb.		3,133 lb.		3,033 lb.		
Average Yield of Scutched Flax per Statute Acre,	...	35 st. 10 lb.,		38 st.		33 st. 10 lb.		28 st. 8 lb.		
Percentage of Scutched Flax from Retted Straw,	...	14.90		15.63		15.07		13.19		
Average Value of Scutched Flax per Stone,*	...	7s. 9½d.		7s. 10d.		7s. 9d.		7s. 6½d.		
Average Returns from Scutched Flax per Statute Acre,	...	£14 1s. 8d.		£15 2s. 8d.		£13 13s. 9d.		£10 12s. 3d.		
Average Returns from Tow per Statute Acre,	...	13s. 7d.		13s. 6d.		12s. 4d.		15s. 3d.		
Average Returns from Flax and Tow per Statute Acre,	...	£14 15s. 3d.		£15 16s. 2d.		£14 6s. 1d.		£11 7s. 6d.		

* The flax grown on each plot at each centre was valued separately. These figures represent the average of the valuations.

In connection with these trials it was noticed that there is a greater difference in the time elapsing between the sowing of the seed and the ripening of the crop in the case of these individual Russian seeds than is usually noticed between Dutch and Riga seeds on the same field. Ouglitch and Vologda seeds—particularly the former—mature comparatively early, but in order to ensure uniform conditions for the retting, spreading, and lifting of the produce from experimental plots, it is necessary to pull the flax when the majority of the plots would appear to be in the best stage of growth. It should also be observed that, although the Kostroma, Ouglitch, and Vologda seeds were sown in proportions calculated on the basis of the respective germination tests, this practice does not exclude from the trial a quantity of weakly light seeds which germinate, but which either soon die away on the field or, in any case, fail to produce a strong vigorous plant. This drawback can only be remedied by a thorough cleaning of the seed, a course, however, the shippers are not as yet inclined to adopt.

B.—SELECTION OF SEED.

In continuance of the experiment instituted in 1904, arrangements were made for the careful selection of long flax plants in the pulling season in 1905. This was done in the Coleraine district, and the plants were selected from the produce of one brand of seed. This selected flax was dried on the field, as was also a quantity of the same crop pulled without regard to length of stalk. The two lots of dried straw were separately rippled, and the two resulting lots of seed cleaned, tested and sown in 1906, with the object of determining whether the length of stalk is an accidental or inherited character, and if this character were transmitted from the one generation to the next, whether it would not be feasible to improve flax by the saving of seed from selected plants.

These two lots of seed were sown at three centres in 1906, and these plots were supervised in a similar manner to, and uniformly manured with, the other seed trials. The complete returns from each centre are shown in Table VI., (page 438), in which are also included for the sake of comparison of the home-saved with imported seed the returns from Pernau Crown seed at the respective centres. Although no marked difference was to be observed between the plots of Irish saved seed before the flax was pulled, it will be seen from this table that in each case the seed from selected plants produced a better crop of straw and fibre than that from the general crop; that there was only a very slight difference in the quality of the fibre yielded as judged by the value assessed; and that the financial returns were practically 24s. per statute acre in favour of the seed selected from long stalks. This result would serve to show

that—as has been proved to be the case with other plants so also with flax—the special character is inherited by the next generation of plants. Information on the question of the feasibility of improving the flax crop in this country by this means is afforded by a comparison of the returns from the Irish saved seed with those from imported Russian Seed (Pernau Crown) as given in Table VI. It will then be observed that in every case the foreign seed has given a better crop in respect of weight and quality of produce than even the home-saved seed from selected stalks, and that on the average the crop from the former was worth approximately £3 per acre more than the produce of the latter as will be seen from the following figures :—

—	Pernau Crown.	Irish saved Seed, selected from long stalks.	Irish saved Seed, unselected.
	£ s. d.	£ s. d.	£ s. d.
Average returns per statute acre,	15 17 3	12 17 6	11 13 7

It would, however, not be possible to draw reliable conclusions from the above experiments, though they largely confirm the results of similar experiments in 1905, and accordingly with a view to affording more information on this subject further trials were planned and are now in progress.

TABLE VI

TABLE VI.—SHOWING the RESULTS of TRIALS of SEED sown in IRELAND from SELECTED and ORDINARY PLANTS and of IMPORTED RUSSIAN SEED.

No. of Plot.		1.		2.		3.	
VARIETY OF SEED.		Pernau Crown. Imported from Russia by the Department.		Irish Saved. Selected from long stalks.		Irish Saved. Unselected.	
Name and Address of Farmer.	Character of Soil.	Retted Straw.	Scutched Flax.	Retted Straw.	Scutched Flax.	Retted Straw.	Scutched Flax.
Messrs. Herdman's, Limited, Sion Mills, County Tyrone.	Heavy loam; sandy subsoil, ...	lb. 3,800	lb. 695	lb. 3,570	lb. 570	lb. 3,410	lb. 540
Messrs. Teadley, Castleroe, Coleraine, ...	Medium loam; clay subsoil, ...	2,575	380	2,530	370	2,210	290
Urney Co-operative Flax Society, Urney, County Tyrone.	Medium loam; clay subsoil, ...	3,410	560	3,130	450	2,920	425
Average Yield of Rettet Straw per Statute Acre, ...	...	3,262 lb.		3,077 lb.		2,847 lb.	
Average Yield of Scutched Flax per Statute Acre,	...	38 st. 13 lb.		33 st. 1 lb.		29 st. 12 lb.	
Percentage of Scutched Flax from Rettet Straw, ...	...	16.71		15.05		14.68	
Average Value of Scutched Flax per stone,*	...	7s. 10d.		7s. 5½d.		7s. 6d.	
Average Returns from Scutched Flax per Statute Acre,	...	£15 8s. 3d.		£12 7s. 3d.		£11 5s. 2d.	
Average Returns from Tow per Statute Acre,	...	9s. 0d.		10s. 3d.		8s. 5d.	
Average Returns from Flax and Tow per Statute Acre,	...	£15 17s. 3d.		£12 17s. 6d.		£11 13s. 7d.	

* The flax grown on each plot at each centre was valued separately. These figures represent the average of the valuations.

III.—THE INFLUENCE OF RIPPLING.

A final test on the rippling of green straw was carried out near Cole-raine in August, 1906, on the same plan as that adopted in the previous year, two lots, each consisting of one ton of green straw, being weighed from an even crop of flax. The one ton was at once rippled on the field, the rippled straw re-tied and placed with the unrippled straw in a retting pond. The produce of the two lots was separately spread, lifted, stacked, scutched and valued, and all details as to cost of labour, yield and value of flax, tows and seed carefully recorded. These particulars are given in Table VII. from which it will be seen that practically the same weight of scutched flax was obtained from each lot of straw; that the produce of the non-rippled straw was of better quality; that a poor yield of seed was obtained, and that the value of the seed was not equal to the cost of rippling and cleaning; and that, therefore, the returns are in favour of the non-rippled straw.

TABLE VII.—Showing the results of an Experiment on the Rippling of Green Flax Straw.

Produce of One Ton of Straw Rippled.		Produce of One Ton of Straw not Rippled.	
	£ s. d.		£ s. d.
74 lb. Scutched Flax at 7s. per stone,	1 17 0	75 lb. Scutched Flax at 7s. 3d. per stone,	1 18 10
Value of Tows,	0 4 7	Value of Tows,	0 4 11
30 lb. Seed at 10s. per cwt.,	0 2 8		
Gross Return,	2 4 3	Gross Return,	2 3 9
Cost of Scutching 74 lb. at 10s. per cwt.,	0 6 7	Cost of Scutching 75 lb. at 10s. per cwt.,	0 6 8
Cost of Rippling and Cleaning Seed,	0 3 0		
	0 9 7		
Net Return,	£1 14 8		
Balance against Rippling per ton of Green Straw,	0 2 5		
	£1 17 1	Net Return,	£1 17 1

The experiments carried out by the Department on the rippling of green flax straw have demonstrated (1) that the quality and yield of

fibre is not seriously, if at all, impaired by rippling; (2) that seed suitable for feeding purposes can be saved from the green bolls, and (3) that whether rippling the green straw will prove remunerative is dependent almost entirely on the amount of seed carried by the crop. The yield of seed varies to a very large extent. In 1903 only 42lb. of seed were obtained from one ton of green straw, and the returns from the rippled and unrippled lots were practically even. In 1904 and 1905 76lb. and 88lb. respectively of seed were obtained from the ton of rippled straw, and in both these years rippling left a profit. In 1906 the lowest recorded quantity of seed—namely, 30 lb.—was produced, and rippling resulted in a loss. Unless the crop bears a large amount of seed, it is not, therefore, advisable to ripple it under the conditions here prevailing.

Copies of this article in leaflet form (No. 52) may be obtained free of charge, and post free, on application to the Secretary, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion-street, Dublin. Letters of application so addressed need not be stamped.

BLACK SCAB IN POTATOES.

A new disease of potato tubers known under the various names of Black Scab, Warty-disease, and Potato Rosette, which was first noticed in England about twenty years ago, has lately become widespread over Great Britain, having recently been reported from Wales and Scotland. The disease is a very serious one, resulting, in bad cases, in the total loss of the potato crop, and, when once established, is almost impossible to eradicate. Up to the present no case of this disease has been reported in Ireland, and it is of the highest importance that it should not be permitted to gain a foothold in this country.

Unlike the more familiar scabs which consist of brownish or rusty-coloured rough patches on the skin of the tuber this more dangerous Black Scab forms characteristic blackish, warty outgrowths or wrinkled lumps which proceed from the eyes.

Appearance of the Scab. In some cases these outgrowths are small and are apt to be overlooked, but in most cases one or more of them is large and prominent (See Fig. 1), the outgrowth in some cases being as large as, or even larger than, the tuber on which it is borne. When the attack is bad these excrescences may unite with each other, producing the condition of things shown in Fig 2, while in the worst cases the tubers are entirely covered with a wrinkled, warty, dark crust.

Not only the tubers but also the underground stems which bear them, and the bases of the stalks near the ground-level may show these peculiar warty outgrowths. On cutting through an affected tuber the central portion is found to be firm and sound, but the wrinkled margin of the scab is dark-coloured. The outgrowths do not increase in size after the tuber is lifted, and premature rotting does not necessarily take place.

When a thin slice of the dark marginal portion is examined with the microscope a large number of oval or rounded, thick-walled, dark spores with granular contents are seen, each of which occupies a separate cell of the tissue (See Fig. 3). These spores are the hibernating or resting condition of a parasitic fungus which is the cause of the disease, and a single affected tuber contains thousands of such spores. Previously to passing into this resting condition the fungus was actively living in and on the cells of the potato, setting up an irritation

there causing the cells to divide and multiply, and so producing the abnormal warty tissue. At this period—that is during the summer—the fungus existed in the form of minute droplets of living protoplasm which were able to multiply and bore their way from one cell to another, thus spreading the disease in the tuber. As the season advances each of these droplets becomes a thick-walled resting spore.

The disease is spread from one place to another, and perpetuated from one season to another by these spores.

Spread of the Disease. It is evident that if affected tubers are taken from one district to another the spores will go with them. The soil also becomes infected from the tubers, and if such soil is carried from place to place by implements, the boots of workers, etc., the disease will be spread by this means. It has been proved that infected soil retains its power of producing diseased crops of potatoes for at least two years, and it is probable that this is the case for even six years or more. No other crop, apparently, is attacked by this parasite and the disease is most prevalent in soils of a light, sandy type.

Although various remedial measures, such as treating affected sets with sulphur, treating infected soil with gas lime in early summer when the resting spores are presumably germinating, and so on, have been suggested and tried with some success on a small scale, these are of little avail. What must be done in Ireland is to prevent the importation of the disease in the shape of infected tubers, or should it by accident reach this country it must be stamped out immediately and not allowed to gain a foothold.

All potatoes for planting, and especially those imported from Great Britain or the Continent, should be carefully examined for any appearance of the warty scab, and especially in the neighbourhood of the eyes. Should suspicious tubers be discovered they should not be planted but put aside, and a couple of specimens forwarded immediately, addressed to

The Secretary,
Department of Agriculture and Technical
Instruction for Ireland,
Upper Merrion-street,
Dublin,

for expert examination. The postage of such samples, if sent by letter post, need not be prepaid. Should such examination confirm the

BLACK SCAB IN POTATOES.



FIG. 1.—Tuber showing the warty outgrowth produced as a result of the attack of the principal eye at the rose end.

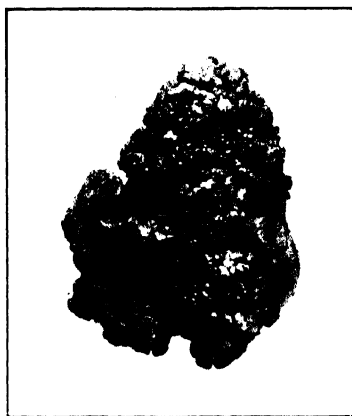


FIG. 2.—Tuber showing many eyes attacked, and the warty outgrowths spreading and coalescing.



FIG. 3.—Thin slice of marginal part of warty growth showing the thick-walled resting spores situated in the cells of the tissue. (Highly magnified).

presence of the disease the sets should be burned without hesitation, as nothing but a diseased and worthless crop will result from them, while the land in which they are planted will be rendered unfit for the cultivation of potatoes for many years. Provided the affected potatoes are previously thoroughly boiled, so as to kill the spores, but not otherwise, they might be used for feeding purposes. In view especially of the proved superiority of Irish potatoes for "seed" purposes and of the necessity for a clean record, it is of the utmost importance that Ireland's freedom from this disease should be jealously guarded and maintained. This end can only be attained by all concerned exercising the utmost vigilance against its importation, and by prompt and drastic action should it make its appearance.

The disease is at present reported from the Counties of Lancashire, Cheshire, Cumberland, Westmoreland, Stafford, and Nottingham in England; Merioneth in Wales, and Perth, Stirling, and Clackmannan in Scotland, and importers of "seed" from any of these districts should be especially cautious. It has also been reported from Hungary.

Copies of this article in leaflet form (No. 91), may be obtained free of charge, and post free, on application to the Secretary, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion-street, Dublin. Letters of application so addressed need not be stamped.

THE USE AND PURCHASE OF MANURES.

When it is considered that every product sold off the farm, whether stock or crop, with the exception of butter, removes a quantity of valuable fertilising substances from the land, and furthermore, that serious waste often occurs through insufficient care in the treatment of farmyard manure, it will be evident that if land is to be kept from deteriorating, at least part of the ingredients thus removed must be replaced. Fortunately, it rarely happens that a soil is deficient in any but one or more of the following four substances :—Nitrogen, phosphates, potash, and to a less extent lime. The deficiency in these ingredients can be made good by the application of artificial manures and by the purchase of concentrated feeding stuffs.

To manure land properly and economically several important principles must be considered, viz. :—

1st. One substance cannot supply the place of another. For example : If land is deficient in phosphates, a full crop cannot be obtained until phosphates are applied, no matter what quantity of the other ingredients may be present. The crop in this case is in the same position as a man who wants to build 100 yards of a wall with stone, sand, and lime, but who has only enough stone to build 50 yards. He may have sufficient sand and lime for 100 yards, but without the required proportion of stones he can accomplish only half his work. It is just the same with the soil. If there is only half enough phosphates in the land it can only produce half a crop. It will not improve matters to apply more nitrogen or more potash if sufficient is present already, any more than it would help to build the wall by bringing another supply of sand or lime.

2nd. The nutritive requirements of the different crops must be considered. Some require to be supplied with more of one ingredient than of another. The most suitable form in which to apply the necessary ingredients to any particular crop should also be taken into account.

3rd. The selection and application of manures must be made with due regard to the variation in the character and requirements of different soils. It is not an economical or good practice to manure all soils or every crop in the same manner. If the selection of manures is left to chance it follows in many cases that an ingredient which is not required is applied whilst an essential constituent may be omitted.

4th. Manures should be procured in the cheapest market, and the purchaser should demand a satisfactory guarantee that the material is of the proper description and quality.

Manures are conveniently divided into two classes, viz. :—Complete manures and incomplete manures. A complete manure contains every ingredient in which a soil is likely to be deficient. Most organic manures, notably farmyard manure, are complete. Incomplete manures contain one or more, but not all the necessary manurial ingredients. Most of the raw artificial manures are incomplete.

Farmyard manure, or dung, is the best example of a complete manure. In addition to containing all the important plant-foods in a form suitable for application to almost every crop, dung, consisting, as it does, mainly of vegetable matter, has a considerable influence

Complete Manures.	on the physical condition of the soil. Thus, on
Farmyard Manure.	heavy retentive land, dung opens up the soil to admit air and assist drainage ; on light land it increases the retentive capacity of the soil for moisture and plant-food.

Although dung is always a complete manure it varies much in quality according to the class of stock from which it is derived, the character of the feeding stuffs consumed, the kind and quantity of litter used, and the method in which it is stored. Manure made by fattening bullocks receiving cake and meals is much richer than that obtained from young growing cattle fed mainly on roots and straw. While dung is stored loss may occur in two ways—first by overheating, second by drainage. Overheating, which occurs most frequently with horse manure, results in a loss of nitrogen, the most valuable ingredient in the manure. Overheated manure has a white mouldy appearance when turned. Loss from overheating may be prevented by mixing the manure from the different classes of stock, and by keeping the heap compact, firm, and moist. Much more serious loss occurs through neglect of the liquid manure. The black liquid which comes from a dung-heap is often allowed to drain into the nearest ditch or stream. This liquid is the most valuable part of the manure, and no pains should be spared to prevent it being lost.

It is seldom necessary to incur much expense in preparing a place for storing dung, nor is it essential to erect a roof over the heap, unless by so doing the shed can be made to serve in addition as a shelter for young cattle or pigs. The site of the manure heap should be a dry, level place to which no water other than that which actually falls on the heap is likely to gain access. The floor should be water-tight and

the manure stored as compactly as possible. Some absorbent material, such as dry earth or bog mould, ought to be placed on the floor and around the heap to absorb any liquid; as this absorbent material becomes saturated it requires to be thrown upon the manure and replaced by a fresh supply.

The fact that the liquid is the more valuable part of the manure is frequently overlooked. The importance of saving the liquid will be appreciated when it is stated that this part of

Liquid Manure. the manure contains the greater portion of the nitrogen and potash; and furthermore that the nitrogen and potash in the liquid are more readily available as plant-foods, and consequently possess a greater value than equal amounts in the solid manure. The phosphates are distributed between the solid and liquid manure in varying proportions.

Liquid manure may be utilised in several ways. It may be soaked up by turf or other absorbent material and thus added to the manure, or it may be collected in a tank and either spread over the manure heap from time to time, or distributed as a top-dressing by a liquid manure cart—an ordinary paraffin barrel can easily be fitted up to serve the purpose. Where circumstances are favourable the diluted liquid may be used for irrigation.

It does not follow because dung can be applied to almost every crop, that artificial manures can be used in the same way. If artificial manures are to be used economically and to the best advantage, the composition of each manure and its suitability to the requirements of the various crops and soils must be carefully considered.

Nitrate of Soda and Sulphate of Ammonia are the principal nitrogenous manures. Each
Manures containing Nitrogen. manure contains but one manurial ingredient—nitrogen.

This fertilizer should be bought on a guarantee of 15.5 per cent. nitrogen, which corresponds to 95 per cent.

Nitrate of Soda. purity. The nitrogen in this manure is present as a nitrate, the form in which plants take up their nitrogen, and is thus immediately available. Consequently nitrate of soda is the quickest-acting nitrogenous manure. Being very soluble it is liable to be washed out of the soil, and accordingly should not as a rule be applied except when the crop has braided and is able to utilise the manure. It may be applied to grass land as soon as growth begins in spring.

This manure should be purchased on a guarantee of $19\frac{1}{2}$ to 20 per cent. nitrogen, which corresponds to 94 to 96 **Sulphate of Ammonia**. per cent. purity. Compared with Nitrate of Soda, Sulphate of Ammonia contains about a quarter more nitrogen, is less liable to be washed out of a soil, and is somewhat slower-acting, because the ammonia has to be changed in the soil to a nitrate before plants can make use of it. It should, therefore, be applied on arable ground a few days previous to, or at the time of, putting in the crop, or to grass-land before growth commences in Spring. Sulphate of Ammonia has not so great a tendency to promote the growth of foliage as is the case with Nitrate of Soda.

Whilst Nitrate of Soda and Sulphate of Ammonia are the principal sources of nitrogen, there is a third form in **Organic Nitrogen**. which farmers may purchase this ingredient—viz., organic nitrogen, which is found in animal or vegetable matter, such as blood, horn, refuse oil cake, &c. Organic nitrogen is slow-acting, and in some cases extremely so; horn, for example, which contains almost as much nitrogen as nitrate of soda, decays very slowly. Its nitrogen, therefore, does not become readily available for use by plants, and consequently, even if ground to a very fine powder so as to facilitate decay, horn has little value as manure.

Phosphates occur in manures in three forms :—(i.) Soluble or quick-acting phosphates. All “dissolved” manures, such as Superphosphate, Dissolved Bones, Dissolved Guanos, etc., contain varying quantities of soluble phosphate. (ii.) Insoluble or slow-acting phosphate. The whole of the phosphate in Bone Meal, Bone Flour, and Raw Guanos, and part of that in Dissolved Bones is present in the insoluble form (iii.) Citric soluble phosphate, which is intermediate in solubility between soluble and insoluble phosphate. The phosphate in Basic Slag is mainly present in this form. Citrate soluble phosphate is also found in superphosphate that has been stored for some time, owing to the fact that some of the phosphate originally present in the soluble or quick-acting form changes or “reverts” to the less available citric soluble form.

Superphosphate varies in composition, and contains from about 20 to 35 per cent. soluble phosphate; and the price of any particular grade should be approximately proportionate to the amount of soluble phosphate it contains. The higher grades, however, are usually better value than low grades. It is not advisable to purchase superphosphate containing less than 25 per cent. soluble phosphate.

Dissolved Bones are more extensively used than other bone manures, but the demand appears to be less than formerly,

Bone Manures. probably owing to the fact that soluble phosphate can usually be bought cheaper as superphosphate, and also to the great increase in the use of Basic Slag. It is important that this manure should be bought under the name of "*pure dissolved bones*" in order to prevent the substitution of mineral superphosphate or so-called bone compounds.

Pure Dissolved Bones should contain about equal quantities of soluble and insoluble phosphate, viz., 14 to 17 per cent. respectively, and about 2 to 3 per cent. nitrogen.

Bone Meal should contain about 50 per cent. insoluble phosphate and

Bone Meal and Bone Flour. 3 to $3\frac{1}{2}$ per cent. of organic nitrogen; Bone Flour, 60 per cent. insoluble phosphate, and about $1\frac{1}{2}$ per cent. of organic nitrogen. Bone Meal, when finely ground and sufficiently cheap, is useful on light land; it is, however, slow-acting and the results extend over a number of years. The decomposition of Bone Meal in the soil is further retarded by the oily matter in the bones. The bones used in the manufacture of Bone Flour are subjected to a steaming process which removes the fatty substances and also most of the nitrogenous substances, such as gelatin. This treatment in conjunction with fine grinding renders Steamed Bone Flour much quicker-acting than Bone Meal. It may be used with advantage for supplying part of the phosphates for turnips, and is also a suitable component of a top-dressing for pasture land.

There are several brands of Basic Slag on the market which contain from about 25 to 45 per cent. total phosphate.

Basic Slag. Basic Slag contains about 40 to 50 per cent. of lime in addition to phosphate, and this fact explains in a large measure its suitability for moory or heavy land deficient in lime. Basic Slag should always be purchased on the three following guarantees :—(i.) The amount of phosphate of lime the manure contains. The price should be proportional to the amount of phosphate. (ii.) The solubility of the phosphate in a 2 per cent. solution of citric acid according to Wagner's test; the solubility should be at least 80 per cent. (iii.) The fineness of grinding. The slag should be ground so finely that at least 80 per cent. of it will pass through a sieve of 10,000 holes to the square inch. (See Department's Leaflet No. 22.)

Three potassic manures are in common use, viz. :—Muriate of Potash, Sulphate of Potash, and Kainit. Commercial samples of Muriate and Sulphate of Potash usually contain about 48 to 50 per cent. of potash. They are liable, however, to vary considerably in composition, therefore the price should always be proportional to the amount of potash they contain. Kainit is less variable in quality and usually contains about 12 per cent. of potash. It is evident from the above figures that 1 cwt. of good quality Muriate or Sulphate of Potash contains as much potash as 4 cwt. Kainit.

The extensive manurial trials carried out by the Department with the principal farm crops have shown that in the majority of cases the most profitable system of manuring with artificials is to employ a complete mixture, *i.e.*, a combination of manures containing the three important manurial constituents, viz. :—Nitrogen, phosphate, and potash. The most suitable mixtures for the various crops as indicated by these experiments are given at the end of this leaflet for convenient reference. (Full particulars of these experiments are given in the Department's leaflets Nos. 36-41, inclusive.) Farmers may either buy the manures separately and mix them at home, or they may purchase the prepared mixtures, which many manure manufacturers now compound according to the Department's recommendations. The chief advantage of buying the raw materials is that the manurial ingredients are generally cheaper than is the case if they are purchased in prepared mixtures; furthermore, farmers are more likely to be supplied with a genuine article. The manufacturer, however, with every facility, for mixing at his disposal is enabled to perform the work much more thoroughly than is possible on the farm, and a small extra charge for mixing is reasonable. Many farmers make the mistake of assuming that a manure at a low price per ton is economical. This, however, is not necessarily the case; indeed, it is usually found that high-grade manures are in reality the cheapest when valued according to their composition.

The relative value of different manures or grades of a manure containing the same ingredient can be ascertained readily by calculating the unit value of that ingredient in each manure. The one with the lowest unit value is the cheapest. The "unit value," or the value of 1 per cent. of an ingredient per ton of manure is obtained by dividing the price per ton of the manure by its percentage composition. Thus if

Sulphate of Ammonia containing 20 per cent. nitrogen costs £14 per ton, the unit value of nitrogen in this manure is £14 divided by 20, that is 14s. Similarly, if 35 per cent. Superphosphate costs £3 10s. per ton, the unit value of soluble phosphate is £3 10s. divided by 35, that is 2s. It should be clearly understood that the unit value of any ingredient in a manure will vary with the market price of that manure, so that the unit value of an ingredient cannot be fixed permanently at any particular figure. When a manure contains but one valuable ingredient there is little difficulty in determining who is offering the best value. Thus, if 35 per cent. Superphosphate is sold at £3 10s. per ton, 30 per cent. Superphosphate would be worth only £3 per ton. The valuation of a manure containing several ingredients is, however, more complicated.

For instance, most of the manures which contain insoluble phosphate also contain organic nitrogen, and accordingly before the unit value of insoluble phosphate can be ascertained the value of the nitrogen must be deducted from the price of the manure ; thus, assuming Bone Meal containing 50 per cent. insoluble phosphate and 3 per cent. nitrogen is sold at £5 10s. per ton, the unit value of the insoluble phosphate would be obtained as follows :—The value of 3 per cent. nitrogen when this ingredient is 14s. per unit = 42s., which, deducted from £5 10s. = £3 8s., which represents the value of 50 per cent. insoluble phosphate, i.e., about 1s. 4d. per unit.

The method of procedure in the valuation of a compound manure may be shown best by an example. Assume
Valuation of that two potato manures of the following com-
Compound Manures. position, respectively, are placed on the market
at the prices mentioned, and it is required to
ascertain which is the better value.

I. Price £6 per ton.

Analysis :—Nitrogen,	.	.	.	.	5 per cent.
Soluble Phosphate,	.	.	.	.	14 per cent.
Insoluble Phosphate,	.	.	.	.	2 per cent.
Potash,	.	.	.	.	4 per cent.

II. Price £5 per ton.

Analysis :—Nitrogen,	.	.	.	.	2 per cent.
Soluble Phosphate,	.	.	.	.	18 per cent.
Insoluble Phosphate,	.	.	.	.	4 per cent.
Potash,	.	.	.	.	1 per cent.

The first thing to do is to fix the unit value of the different ingredients from the current prices of the raw manures. As market prices and, of course, the unit values of the different ingredients are subject to constant variation the following prices are given merely to illustrate the method of valuation and must not be regarded as representing the values at all times.

If the following were the current prices of the raw manures the unit values of the different ingredients would be :—

Sulphate of Ammonia (20% Nitrogen) at £14 per ton. Unit value of Nitrogen = £14 ÷ 20 = 14s.

Superphosphate (35% Soluble Phosphate) at £3 10s. per ton. Unit value of Soluble Phosphate = £3 10s. ÷ 35 = 2s.

Bone Meal (50% Insoluble Phosphate, 3% Nitrogen) at £5 10s. per ton.

Unit value of Insoluble Phosphate = £5 10s., less 42s. (the value of 3% Nitrogen at 14s. per unit) = £3 8s. ÷ 50 = 1s. 4d.

Kainit (12% Potash) at £2 12s. per ton. Unit value of Potash = £2 12s. ÷ 12 = 4s. 4d.

Having obtained the unit values of the different ingredients, the value of the compound manures can be estimated as follows :—

		£	s.	d.
I.—Nitrogen,	5% at 14s.	= 3	10	0
Soluble Phosphate,	14% at 2s.	= 1	8	0
Insoluble Phosphate,	2% at 1s. 4d.	= 0	2	8
Potash,	4% at 4s. 4d.	= 0	17	4
<hr/>				
Actual value per ton,			5	18 0

Price charged,			6	0 0
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		£	s.	d.
II.—Nitrogen,	2% at 14s.	= 1	8	0
Soluble Phosphate,	18% at 2s.	= 1	16	0
Insoluble Phosphate,	4% at 1s. 4d.	= 0	5	4
Potash,	1% at 4s. 4d.	= 0	4	4
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Actual value per ton,			3	13 8

Price charged,			5	0 0
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No. 1 is good value at £6 per ton, while No 2, although offered at £1 per ton less, is still £1 4s. 4d. per ton dearer than No. 1.

The procedure to be followed in determining the value of a compound manure, or to compare the relative values of two manures, as indicated in the above examples, is briefly :—(1.) ascertain at what price the raw material can be bought ; (2.) divide this price by the percentage of the ingredient each manure contains ; the resulting figure will be the unit value of that ingredient.

In accordance with the Fertilizers and Feeding Stuffs Act, the seller must supply the buyer with an invoice in which **Misleading Methods of Stating Analyses.** is stated the quantity of nitrogen, soluble and insoluble phosphates, and potash, respectively, the manure contains. Many farmers do not avail themselves of the protection against fraud afforded by this Act, and the Department would urge purchasers of manures to insist on being supplied with a properly-worded invoice showing the composition of the manure. No invoice should be accepted in which the amounts of the above ingredients are not stated in a proper manner, that is, as *nitrogen, soluble phosphate, insoluble phosphate, and potash*. Special attention is directed to this subject because it has been, and still is, customary to state the nitrogen as ammonia or sulphate of ammonia, the potash as sulphate of potash or as potash salts, whilst the phosphates are at times stated as total phosphates or as “partially,” or “mostly,” soluble. The composition of manures is stated in this manner to mislead the purchaser into thinking that he is buying a better quality manure than is really the case.

The relationship of the compounds to the pure ingredients are as follows :—

1 per cent. Nitrogen = $1\frac{1}{4}$ per cent. Ammonia, or $4\frac{3}{4}$ per cent. Sulphate of Ammonia.

1 per cent. Potash = $1\frac{1}{2}$ per cent. Sulphate of Potash.

The term “Potash Salts” is vague and unsatisfactory and should never be accepted.

The following example shows how the analysis of a manure was quoted to mislead purchasers regarding its actual value :—

Analysis as stated by the Manufacturer.	Analysis correctly stated.
14% Total Phosphate.	12% Soluble Phosphate.
12% Soluble Phosphate.	2% Insoluble Phosphate.
7% Sulphate of Ammonia.	$1\frac{1}{2}$ % Nitrogen.
10% Potash Salts.	$1\frac{1}{3}$ % Potash (and possibly even less).

When an analysis is not stated in a proper manner, it is unnecessary for the purchaser to convert sulphate of ammonia into nitrogen, sulphate of potash, into potash, &c.; instead, he should compel the seller to give him an invoice made out according to the requirements of the Acts. Any farmer who cannot obtain a proper invoice when purchasing manures should immediately report full particulars of the case to the Department.

Although good crops can often be grown with artificial manures alone,

**Requirements of the
Different Crops.**

manurial experiments have repeatedly demonstrated that artificials are, as a rule, most profitably employed when used to supplement a moderate dressing of dung. Complete dressings, that is, a mixture of artificials containing each of the three important manurial ingredients, nitrogen, phosphate, and potash, can generally be relied upon to give profitable returns, and at the same time to maintain the fertility of the soil, and are therefore recommended in preference to an incomplete manure. For convenience of reference the complete dressings recommended for the different crops are given at the end of this article.

The turnip crop requires a manurial dressing consisting mainly of phosphates. On land in fairly good condition

Turnips.

an application of 4 cwt. 35 per cent. Superphosphate in conjunction with a moderate dressing of dung gives good results, but on land which is naturally poor or is in low condition the complete mixture (see page 445) is, however, more generally suitable. Basic Slag may partly or wholly be substituted for Superphosphate on heavy or moory soils and on land where "finger and toe" is prevalent. Turnips grown on heavy land may be top-dressed after thinning with nitrate of soda at the rate of about 1 cwt. per statute acre, and where an attack of turnip "fly" is feared a similar dressing to force the young plants into rough leaf is beneficial on all soils. Turnips grown without dung may be manured with the same mixture of artificials, but one and a-half times the quantity should be applied.

The Department's experiments do not indicate that any material advantage is secured by the use of more complicated mixtures of manures for turnips grown without dung.

Although mangels resemble turnips in the matter of cultivation and the purpose for which they are grown, they

Mangels.

differ considerably in their manurial requirements. While turnips are specially benefited by superphosphate, it has comparatively little effect on mangels. The

mangel crop has most difficulty in obtaining nitrogen. Nitrate of soda may be used instead of sulphate of ammonia, the nitrate being best applied as a top-dressing after the mangels are thinned. If the quantity used exceeds 1 cwt. per statute acre it should be applied at two different times.

Salt should be included in the mixture of manures for this crop (see page 456).

Potatoes require a complete manure containing a higher proportion of potash than is used for roots. Either Muriate of Potash or Sulphate of Potash is preferable to Kainit for this crop. The Department recommend Muriate of Potash as it is usually a cheaper source of potash than Sulphate of Potash, and equally efficacious.

The best results with cabbages are obtained from heavy dressings of dung. When the plants have started to grow a pinch of Nitrate of Soda should be sprinkled near the roots of each plant. Dilute liquid manure may also be applied.

Not only does the judicious application of artificial manure to oats on poor lea land give a profitable return, but the heavier crop keeps down weeds and scutch grass and the deeper roots of the oats open up the land, so that it is easier tilled the following year. A complete manure containing a considerable amount of nitrogen makes a suitable dressing (see page 456). Nitrogen may be supplied either as nitrate of soda or sulphate of ammonia. The tendency of the former is to unduly increase the straw, while the latter produces better grain and its application is less likely to delay the ripening of the crop.

When it is necessary to manure barley a complete manurial dressing, consisting of sulphate of ammonia, superphosphate, and kainit (see page 457), is recommended in preference to the application of any one ingredient.

The manures for both oats and barley are best applied some ten days before sowing, when the seed bed is being prepared.

Wheat is particularly responsive to nitrogenous manures, and accordingly nitrogen should form the principal constituent of any manurial dressing employed. It is often found profitable to apply a top-dressing of nitrate of soda at the rate of 1 cwt. per statute acre to wheat appearing thin or unhealthy in spring.

On poor land it is advisable to apply 2 cwt. 35 per cent. superphosphate and 1 cwt. kainit before sowing, and to top-dress the crop with nitrate of soda in March.

Flax grown after lea oats or after oats succeeding manured green crop responds to an application of a potash manure. From 1 to $1\frac{1}{4}$ cwt. muriate of potash has usually proved the most profitable manuring, whilst an equivalent dressing of 4 to 6 cwt. kainit per statute acre has also been found remunerative. The application of either of these manures in the quantity specified also effectually prevents the disease known as "yellowing." The question as to whether such a dressing of a potash manure may be profitably supplemented by the addition of a slow-acting nitrogenous manure is under investigation by the Department.

Many farmers do not realise that a crop of hay removes almost as much plant food from the soil as a corn crop, and that if meadows are to be prevented from deteriorating they must be liberally manured.

Hay.

When a portion of the dung can be spared, it cannot be utilised to better advantage than as a dressing for meadows. Failing dung, superphosphate and kainit, 2 cwt. of each, should be applied early in spring, followed by a top-dressing of 1 cwt. nitrate of soda when growth commences. On black bottoms or moory land, 6 to 10 cwt. of basic slag per statute acre should be applied during November or December. On such land slag seldom fails to greatly improve the quantity and quality of the herbage. An addition of 2 to 3 cwt. kainit to the slag and an application of nitrate of soda in March or April is also recommended on this class of land.

It is of the greatest importance that manures be thoroughly mixed, and unless a farmer is prepared to carry out the

Mixing Manures. work efficiently, he should not attempt to prepare his own mixtures, but leave this operation to the manufacturer.

To mix manures on the farm the following directions should be observed :—Select a clean, dry floor, preferably of concrete, and spread out the manures in the required proportions in a heap. Turn the heap completely several times to thoroughly mix the manures, and break fine any lumps. The mixture should be finally passed through a fine riddle or screen.

In no case should manures be mixed except immediately before use.

Some manures cannot be mixed on account of chemical action being thereby set up which results in a loss or depreciation of the fertilising ingredients.

The following manures should not be mixed or loss will result :—(1) Basic Slag with any manure containing ammonia or soluble phosphate, such as—sulphate of ammonia, guano, superphosphate, dissolved bones, (2) nitrate of soda with superphosphate or dissolved bones except for immediate application, and under no circumstances if the superphosphate or bones be not in fine, dry condition.

If superphosphate is mixed with kainit, a quantity of sawdust, dry bog mould, or earth should be added, otherwise the mixture is liable to become sticky and form into a hard mass.

For convenience of reference the manurial dressings recommended per statute acre for the different crops are here summarised :—

Turnips (I.)—10 tons dung.

1 cwt. Sulphate of Ammonia.

4 cwt. 35% Superphosphate.

3 cwt. kainit.

(II.)—1½ cwt. Sulphate of Ammonia.

6 cwt. 35% Superphosphate.

4½ cwt. Kainit.

} Without dung.

(See Leaflet No. 41.)

Mangels (I.)—20 tons dung.

2 cwt. Sulphate of Ammonia.

4 cwt. 35% Superphosphate.

4 cwt. Salt.

(II.)—20 tons dung.

4 cwt. 35% Superphosphate.

4 cwt. Salt.

2 cwt. Nitrate of Soda (applied in two dressings after thinning).

(See Leaflet No. 39.)

Potatoes—15 tons dung.

1 cwt. Sulphate of Ammonia.

4 cwt. 35% Superphosphate.

1 cwt. Muriate of Potash.

(See Leaflet No. 38.)

Oats.—1 cwt. Sulphate of Ammonia.

3 cwt. 35% Superphosphate.

3 cwt. Kainit.

(See Leaflet No. 40.)

Barley.—1 cwt. Sulphate of Ammonia.

3 cwt. 35% Superphosphate.

3 cwt. Kainit

(See Leaflet No. 36.)

Wheat.—2 cwt 35% Superphosphate.

1 cwt. Kainit.

} Applied at time of
sowing.

1 cwt. Nitrate of Soda (given as a top-dressing in March
or April).

Flax.—1½ cwt. Muriate of Potash or 5 to 6 cwt. Kainit.

(See Leaflet No. 52.)

Meadow Hay.—1 cwt. Nitrate of Soda.

2 cwt. 35% Superphosphate.

2 cwt. Kainit.

(See Leaflet No. 37.)

The above mixtures of manures are recommended for land of average fertility, but each farmer should experiment for himself to ascertain the quantities which are likely to prove most profitable under his own local conditions. This should involve no difficulty and need entail little trouble. If it is considered advisable to modify the total quantity of manure to be applied to any particular crop, it is important that the proportions in which the manures are mixed should not be altered, as these proportions have been evolved from careful and protracted experiment and may be regarded as being applicable throughout the country.

Copies of this article in leaflet form (No. 17 Revised) may be obtained free of charge, and post free, on application to the Secretary, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion-street, Dublin. Letters of application so addressed need not be stamped.

REARING CHICKENS IN BROODERS.

The appliance which is used for rearing chickens after they have been hatched in an incubator is an artificial rearer variously called a "brooder," "rearer," or "foster-mother." The art of rearing chickens artificially has been brought to great perfection within recent years, and those who have experience in this method of rearing assert that it is easier and more satisfactory in every way to rear chickens by artificial means than by the aid of hens. However this may be, it is certain that many of the more extensive poultry keepers have now adopted the artificial process of both hatching and rearing. A very great improvement has been brought about in the manufacture of artificial rearing appliances, and they are no longer the death-traps which many of them undoubtedly were, not very many years ago.

Brooders are made in various styles (see illustrations), but almost all of them contain either two or three compart-

Various Styles of Brooders.

ments. There is usually the sleeping compartment, in which is placed the lamp, tank, or other source of heat and opening off this is the run or feeding compartment. A brooder so made is complete, but many machines have a third compartment, called the outer run, and this is certainly a decided advantage. A good brooder may cost from two to four pounds, in accordance with its size, but those which are made by reliable manufacturers will last for many years, if treated with care, painted annually, and safely stored when not in use, and this being so it is preferable to pay a few pounds for a good brooder rather than a smaller sum for an unreliable machine-

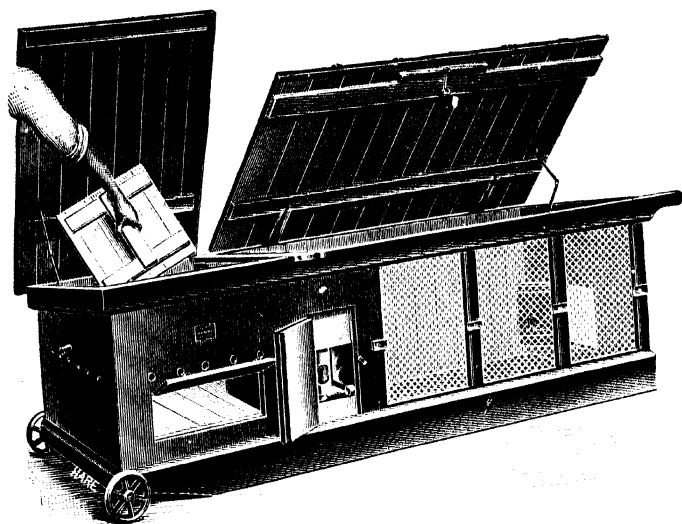
Sometimes brooders are home-made, and I have seen numbers of them in use, apparently giving every satisfac-

Home-made Brooders.

tion, but there are few carpenters who can make them well, and, on the whole, I believe it is wiser and less expensive to have brooders made by those who understand the principles of artificial rearing, and who have proven that they can make trustworthy machines.

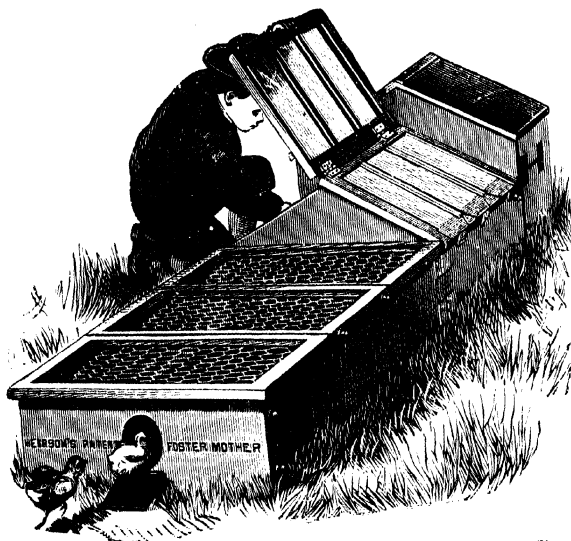
It is, as a rule, a mistake to depend solely upon hens to rear chickens which have been artificially hatched. Hens will not, of course, take to chicks unless they (the hens) are broody, consequently it is very difficult to provide enough broody hens early in the year to take care of a large

REARING CHICKENS IN BROODERS



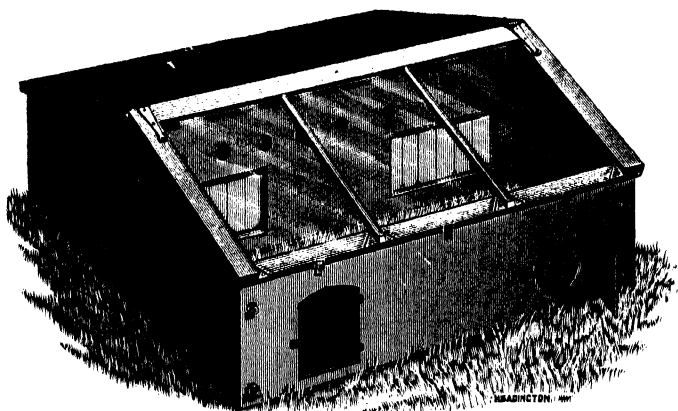
Nonpareil Brooder.

(W. Tandin.)

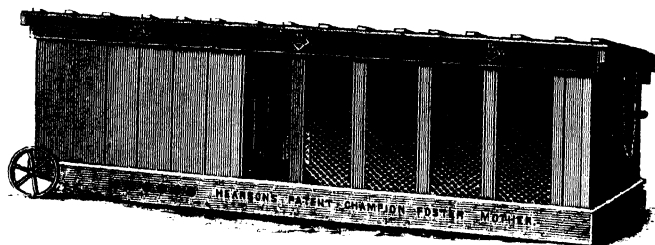


Hearson's Foster-Mother. (Spratt's Patent, Ltd.)

REARING CHICKENS IN BROODERS.



(Spratt's Patent, Ltd.)



(Spratt's Patent, Ltd.)

Two Smaller Brooders.

number of incubator-hatched chicks ; and when one depends upon hens there is a risk that either early hatching is delayed, or too many chicks

are given to each hen and she cannot possibly hover them so that the mortality is very great, Advantages of Artificial Hatching. and there is much disappointment and vexation.

Therefore I should say that if much artificial incubation is carried on, rearing ought to be done by the same process, and there are but few circumstances in which artificial hatching can be conveniently or successfully combined with rearing by hens.

Artificial rearing may be said to begin immediately after the chicks leave the shell, since it takes them only a few hours to dry, and they must then be removed to the drying box or compartment of the incubator. Some machines are not fitted with a drying box, which is a drawback and often causes annoyance and extra work to the attendant, and there are also some incubators fitted with drying boxes which are entirely too small to accommodate the number of chicks which the incubator is supposed to hatch. In the latter

Treatment of Chickens when hatched. case the attendant must take care to admit sufficient air to the chicks while they are drying, but if there is no drying box it is necessary to

remove the chicks to a box or basket lined with cotton wool or some similar material, and place them near a fire where they will keep moderately warm. In due time they can be removed to the brooder, but not until this appliance has been fully prepared for their reception. The first step in this direction is to thoroughly scour and air the interior of the brooder, leaving it if possible for two or three days in the open air, exposed to wind and sun. It is also recommended that the appliance should be lime-washed in the interior after rearing each batch of chicks, and as all this takes time, it is apparent that the brooder must be got ready several days before the chicks are due to hatch. It is also necessary to heat it up and let it run for at least two days, in order to see if the proper temperature can be maintained.

It is recommended that a sheet of thick brown paper should be placed on the floor of the sleeping chamber, under the

Preparing the "Brooder." litter, so as to keep the floor from becoming soiled. Over the paper some litter must be spread, and this may consist of chaff, chopped

straw, dried lawn clippings, or any short light material spread on the floor to the depth of half an inch. For the floors of brooders, dry garden earth and clean sand are also used, and can be recommended as quite as good as light litter. Both the paper and litter

used on the floor should be renewed three times a week, if there is a full batch in the brooder, but if the batch has been a small one, and the machine is filled to, say, only half its capacity, the litter need not be removed oftener than twice a week.

Nothing is more detrimental to the well-being of young chickens than overcrowding, and I believe that more **Overcrowding should** chicks are lost from this than from any other **be avoided.** cause It is easy to see how the inexperienced chick rearer can be led into the mistake of putting too many chicks into a brooder, because brooders are advertised as capable of accommodating a certain number of chicks, say one hundred, and this only means that they are large enough for that number of chicks up to a few days or a week old. Hence it is plain that at the age of two weeks, if all the chicks have survived, they are hopelessly overcrowded, and by the time they have reached the age of three or four weeks more than half of them have died, and those that remain are stunted and miserable. Chicks which are allowed plenty of room in the brooder grow at a surprising rate, and if the machine is capable of accommodating fifty chicks, newly hatched, it will certainly not hold more than half that number at three weeks old. It is, moreover inadvisable to put too many chicks into a brooder no matter what size it may be, and if batches of chicks were divided into flocks of twenty-five or thirty much better results would be attained than are got from the rearing of one hundred chicks in a single brooder. It will accordingly be seen that if hatching is to be carried on continuously throughout the spring, it is necessary to keep more than one brooder for every incubator of one-hundred-egg capacity.

The brooder may be placed in somewhat the same situation as one would place a coop containing hen and chickens, that is to say, a great deal depends upon climatic conditions. In summer and late spring the proper place for the brooder is in an open field, provided of course that the situation is a sheltered one, as exposure to severe storms or chilling winds must be guarded against. The machine should be placed where it can receive sunshine during the greater portion of the day. But when the conditions are contrary, it is necessary to have the brooder under cover of a house or shed during winter and early spring, when the earlier broods are being raised. And again, when the weather is particularly sultry, with the sun baking the earth, it is almost needless to say that the brooder must be located in the shade.

The brooder is generally fitted with a thermometer, as it is essential to keep the heat fairly regular

The Temperature of the Brooder. There is considerable danger to the health caused by alternate over-heating and under-heating, since irregularity of temperature is productive of colds, and perhaps of more serious ailments, and if a chick which has once got a thorough chilling does not die at a very early age, at any rate it seldom reaches maturity. The best of all thermometers is, however, the chick itself, and observation teaches the attendant to know whether the chicks are receiving too much or too little heat, or just the proper amount. When the chicks huddle into a corner or crowd about the lamp or other source of heat, with occasional plaintive cries, they are too cold, but if they should pant and lift their wings and retire to the coolest corners of the brooder, these things are an indication that too much heat is being applied. But, when the chicks do neither of these things, but rest contentedly on the brooder floor, some near the lamp, some at the door, and others in various positions, we may feel assured that the temperature is about right.

With regard to this matter of proper temperature the following is the advice given by a poultry keeper who has had many years experience in the artificial rearing of chicks :—"The temperature of the sleeping compartment of the brooder should be maintained for the first three or four days at about 90 degrees. The temperature should be taken half way between the floor and the top. At the end of four days the heat can be decreased gradually until the young birds are three weeks old, when 70 degrees at night will be sufficient. Then by degrees, 50 degrees can be reached, until it is considered that the chicks can do without any artificial heat. The heat, however, in the brooder, must be regulated to some considerable extent according to the temperature of the outside atmosphere. If the weather is warm, the brooder can be allowed to cool down more in the day time, care being taken that the temperature is raised again for the night."

Needless to say the feeding of the chickens plays an important part in their up-bringing and rapid development, and

The Feeding of Brooder Chickens. the most important questions next to those already considered are—(1) what food to use, and (2) how to feed it. The systems of feeding chicks now in general use may be defined under three heads, namely (1) dry feeding, (2) mash feeding, and (3) a combination of dry and

mash feeding, and amongst the most practical and experienced of chick raisers we have advocates of each of the three methods of feeding enumerated. In one of the English poultry journals the question was recently very fully discussed by experts, and opinions as to the merits of each system were pretty equally divided.

The dry feeding of chicks consists in allowing them a full supply of smallseeds and crushed grains of many kinds, without any soft food whatever from the day they are hatched forward, up to the age of eight or ten weeks or even longer. This dry food is fed in various ways, but chiefly buried in light, short litter, and it is found that there is very little mortality amongst the chicks, that there is a considerable saving in food and the labour of attendance, and that the chicks suffer very little from bowel troubles and the other complaints to which young chicks are subject. But, on the other hand, it is found that chicks do not grow so fast when fed on dry stuffs alone. Chickens grow very fast and attain a great size when fed wholly or largely on soft mashes, and this manner of feeding is often followed in raising spring chickens, with a view to forcing them for the early market. It cannot, however, be recommended for general adoption, and taking everything into consideration

Mixed Feeding
best.

it is probable that the best results in chick rearing can be attained by the judicious feeding of soft foods and dry grains combined, provided that the person who attends to the chicks understands their wants, and is prepared to give them constant and regular attention. The rearer, who is a novice, or inexperienced, or careless, will, however, rear more chicks by feeding on dry foods alone, and this is probably the reason why the dry system has come so much into favour within the past two or three years. It is a safe method in the hands of unskilful poultry keepers.

One of the best ways of feeding chicks, assuming that they are to be fed a combination of dry and soft foods, is to let them have during the first four or five days of their lives several feeds a day of a crumbly mash, consisting of custard made from eggs and milk, nicely dried by the addition of some oatmeal, wheatmeal, or fine middlings, and an occasional feed of purely dry food, such as oatmeal, millet, canary seed, crushed wheat, &c. During the first day, of course,

Hints on Feeding. they do not need any feeding, but afterwards they must be fed frequently as the crops of newly-hatched chicks are small and they cannot hold very much food at a time. It is not too often to feed them once every three hours during the first week, care being taken to give only as much food at

each meal as the chicks will eat up with relish, and to supply the meals very early in the morning, late at night, and at regular intervals throughout the day. The soft foods may, with advantage, be moistened with milk in preference to water, as milk is a most nutritious food for young chicks, as well as for young animals. Chicks learn to eat at a very early age, and they pick at everything of a light colour, which they see on the ground. It is accordingly not very difficult to induce them to partake of grit, and this should be given in the form of sharp sand, or specially prepared chick grit, from the very beginning. Chicks need grit to aid them in digesting their food as badly as they need the food itself, and if they are taught to eat it in their earliest days they will seldom pass a day without paying a visit to the grit box. Green food should also be supplied from the commencement, and an excellent plan is to dig a sod of earth with short green grass, such as can be found in a pasture, and place it in the chick run. This is often done in the rearing of goslings, but there are few who take the trouble to provide chicks with green food in this way.

There are other kinds of green food which might also be fed, if finely chopped and either mixed with the mash or given separately, and these include lettuce, cabbage, onions, leeks, nettles, &c. A small quantity of lean meat, either raw or cooked, may be allowed daily, but the greatest care must be taken not to feed too much of it, and as soon as the chicks get out in the fields, where they can find plenty of insects and worms, they generally do better without any additional animal food. When prepared chick foods are used, it becomes unnecessary to feed meat to chicks, as these prepared foods usually contain a sufficient quantity of animal foods, and anything additional might be injurious. After the first few days the use of egg foods for chicks may be dispensed with, because they invariably do better on plain meals, milk, meat and vegetables, and it would be nothing more than an unnecessary expense to continue feeding eggs longer than they are beneficial to health or growth.

Plain mashes may be made up by mixing together meals of various kinds, such as middlings, barleymeal, wheatmeal, ground oats, &c., and these may be moistened with either milk or water, and vegetables may be added to them as desired. Mashes made in this way if moistened

Preparing and Feeding Mashes.

with milk may be baked in an oven, and the dark brown bread into which they are baked may be fed to the chicks in large junks, or may be smashed up by the aid of a bone or vegetable cutter. It is often enough to feed this soft food, to chicks of two weeks

old and upwards, three times a day, and their remaining meals, to the number of two or three, may consist of dry grains, either whole or crushed, according to the age of the birds.

When feeding mashcs to chicks the most important rule to be borne in mind is that the mashcs must be in a nice crumbly condition, that on no account must they be sour, stale or sloppy, and that no mash must be left lying about after the young birds have eaten enough. Chickens can be reared without giving them any water to drink, provided they get milk instead, or that the foods supplied contain sufficient moisture, but it is always safer to keep a well filled fountain of fresh water where they can reach it, and then they will never suffer from thirst, nor drink too much when an opportunity arises.

The welfare of chicks, which are being raised in a brooder, depends almost entirely upon the skill of the attendant and the amount of care which is given to them. They have no mother to teach them how and when to eat, when to rest and when to scratch, and instinct being often at fault, it is a common failing with brooder chicks to eat and rest too much and to scratch too little. The chicks must accordingly be fed in the most careful manner, and they must be induced to scratch for a large proportion of their food, by burying the dry portion of it in the light litter of the run. Brooders must be cleaned daily and the litter must be entirely renewed two or three times a week, the heat must be kept regular, for if it is too high the chicks will die at once, and if it is too low they will pine and dwindle away and finally the attendant must use his or her powers of observation and see that the chicks are thriving and growing from day to day as they ought when well cared, liberally fed, and managed in an intelligent manner.

H. DE COURCY.

MUNICIPAL TECHNICAL SCHOOL. QUEENSTOWN

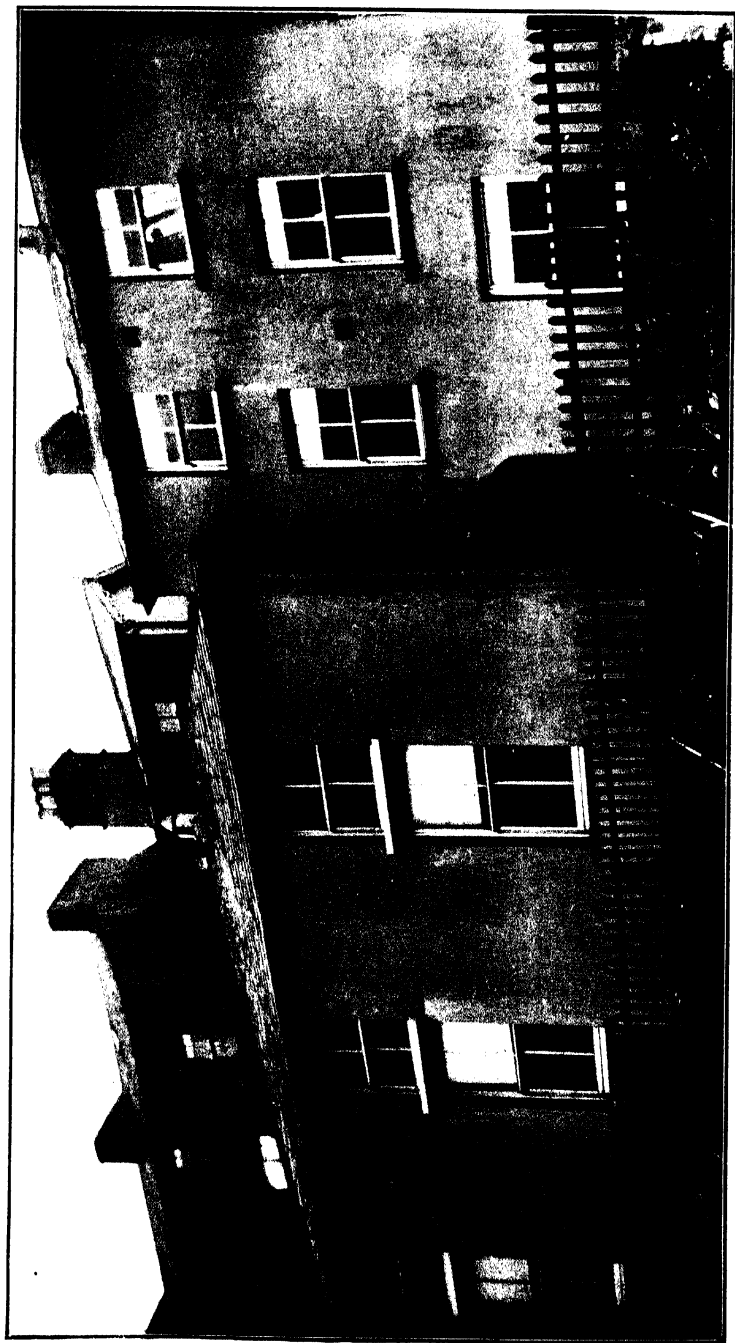


Fig. 1.—Elevation.

TECHNICAL INSTRUCTION IN IRELAND.

[* * *The following is the fifth of a short series of articles appearing in the Journal on some recently established Technical Schools in Ireland. These descriptive articles relate to centres differing widely in population and needs, and it is believed that they will be of interest and value in view of future developments in towns in which permanent buildings have not yet been provided. The first three articles dealt with the Belfast Technical Institute; the Technical School, Ballymoney; and the Central Technical Institute, Waterford.* Those buildings were new. It is proposed to continue the series by publishing some articles, of which this is the second, dealing with buildings already erected but adapted to meet the needs of a Technical School. The first of this latter section of the series dealt with Technical Instruction in Ballymena.†*]

TECHNICAL INSTRUCTION IN QUEENSTOWN.

By GEORGE THOMPSON,

Principal, Day Trades Preparatory and Technical School.

PART I — INTRODUCTORY.

One of the authoritative rules which relate to the working of Technical Instruction Schemes, is "that the instruction provided shall be suited to local requirements." In applying this rule, difficulties of a local character are generally met with, which very often contribute largely to deciding upon what lines the courses of instruction shall take. Such was the case in Queenstown at the formation of the scheme in the year 1902.

The position of Queenstown geographically possesses a peculiar interest making it necessary to preface this article with a few remarks bearing on the importance that a centralized position means to an institution intended for technical instruction purposes.

Queenstown is famous for its very extensive and picturesque harbour, in which are situate a number of islands of varying extents; it is upon the largest of these that the town of Queenstown stands, being thereby effectively isolated from the main land of County Cork, the only means of communication being by a railway and a vehicular bridge at

* See issue of Department's *Journal* for April, 1907, Vol. VII., No. 3, p. 457; for July, 1907, Vol. VII., No. 4, p. 652; for October, 1907, Vol. VIII., No. 1, p. 11.

† See issue of Department's *Journal* for January, 1908, Vol. VIII., No. 2, p. 260.

the northern side. This barrier of surrounding water has to a large degree moulded the commercial life of the town and neighbourhood. The numerous little industries usually found in Irish towns of similar size are entirely lacking in Queenstown, for, with the single exception of the building trades, there are no creative industries whatsoever.

Considering that the possible supply of students from the town proper is a very scanty one, it may rightly be asked

The Haulbowline upon what grounds was it found necessary to
Dockyard School. establish a Technical School in such surroundings. The answer lies in the fact of the existence

on the adjacent Island of Haulbowline of H. M. Dockyard, where some 600 hands are employed, a large number of whom have their homes in Queenstown. The apprenticeship system prevailing in this yard is well worthy of a moment's study. Boys between the ages of 14 and 16 years are admitted on the result of a competitive examination. The apprenticeship extends over a period of six years. In addition to working at his trade in the shops the boy is compelled to attend the Dockyard school on certain days of the week. In June of each year he is subjected to an examination consisting of "theoretical" and "professional" subjects. If the necessary percentage of marks is not obtained the boy is expelled from the school, and must afterwards depend entirely upon his practical work for advancement. This system of selection is a very rigorous one and very few in the past have survived the six years' series of tests. In most instances the failure to attain the necessary standard has been probably caused by the lack of instruction in "professional" subjects in the Dockyard school. It is here that the technical school has fulfilled one of its most useful objects, the subjects of Applied Science and Technology taught in the school (called "professional" by the Dockyard authorities) being particularly adapted to the needs of the young shipbuilder and electrical and mechanical engineer.

In recognition of the good work being performed in the school, the Admiralty a year ago sanctioned a grant of £40 per annum towards the cost of working the scheme.

Of the 8,000 people resident in Queenstown, those not connected with the Dockyard are either dependent for a livelihood upon the transshipment of mails and passengers to and from the Transatlantic liners, or are concerned in dealings with the vessels which make Queenstown their port of call for orders when homeward bound.

Thus, it will be gathered that a scheme "suited to local needs" must necessarily consist of instruction in subjects pertaining to the Mechanical Arts, together with a sound commercial training for those engaged in

administrative work. As regards the former, the school offers ideal facilities, which are being eagerly partaken of by young men of the proper type. Unfortunately the commercial education has been neglected in the past, owing to the lack of funds, but it is hoped that this serious defect may be remedied in the coming year by the appointment of additional Commercial Instructors.

PART II.—DEVELOPMENT OF THE SCHEME OF TECHNICAL INSTRUCTION.

The body responsible for the management of the school is the Joint Technical Instruction Committee for County Cork, which consists of 30 members, a proportion being members of the County Council, and the remainder composed of co-opted members and representatives of the urban districts throughout the county. The local authority in Queenstown supplies two members.

Since its formation in the year 1902 the Committee has had the great advantage of possessing the same chairman. Throughout this period the chair has been occupied by the Most Rev. Robert Browne, D.D., Lord Bishop of Cloyne.

In addition to the responsible body of management a committee of 13 local gentlemen acts as a local sub-committee. This committee has been of great assistance in the successful carrying on of the work. Meetings are held at intervals during the session, when such work as the formulating of schemes of instruction and the superintendence of examinations is performed. Frequent visits to the classes at work are made by the members of the local body, all of which tends to encourage the young students.

The difficulty of securing suitable accommodation existed at the commencement, but a start was made in the school of the Presentation Brothers, who had just installed a Science Laboratory, and who afterwards equipped a room for Handicraft.

The teaching staff allotted by the Committee to Queenstown consisted of :—

- (a) Lecturer in Building Trades Subjects and Instructor in Manual Training.
- (b) Lecturer in Machine Construction and Drawing.
- (c) Lecturer in Commercial Subjects.
- (d) Art Instructor.
- (e) Navigation Instructor

All these, with the exception of the Building Trades Lecturer, were "part time" teachers. The Building Trades Lecturer had additional

duties in *Passage West* (a small town on the harbour with a shipbuilding yard) and was also engaged in the teaching of handicraft in day secondary schools.

The enrolment of pupils in the first session exceeded the initial accommodation provided, large numbers seeking admission to classes for which they had not the slightest qualifications.

The work in the early stages was necessarily of a pioneer character, and consisted altogether of instruction of a preparatory nature, given with the hope that a solid foundation might be laid for more strenuous work in the succeeding session.

A glance at the accompanying schedule will convey an idea of the whole scheme of instruction provided in the **First Scheme of Instruction.** Evening Division since its inception. The outstanding feature to be observed from this table is the failure to sustain a class in Navigation, the explanation of which may lie in the fact of there being no sea-going vessels attached to the port, and also to the lack of preliminary geometrical knowledge in the would-be mariner.

SCHEDULE showing the AVERAGE WEEKLY and TOTAL ATTENDANCE in all Subjects since the commencement of TECHNICAL EDUCATION in QUEENSTOWN.

SESSION.	1902-03.	1903-04.	1904-05.	1905-06.	1906-07.
Building Construction. .	124	82	60	67	—
Commercial Subjects, . .	252	102	227	136	—
Mechanical Drawing, . .	132	98	70	—	—
Navigation,	41	—	—	—	—
Art Subjects,	144	42	47	38	—
Carpentry and Joinery, .	100	46	120	102	62
Practical Woodworking, .	167	160	162	124	112
Machine Construction, .	155	85	158	144	186
Mathematics and Geometry,	—	37	78	82	312
Naval Architecture, . .	—	106	79	97	105
Applied Mechanics, . .	—	—	44	42	77
Steam and Heat Engines, .	—	—	—	42	64
Engineering — Workshop Practice.	—	—	—	120	60
Magnetism and Electricity,	—	—	—	—	61
Total,	1115	758	1045	1006	1089

MECHANICAL ENGINEERING

STORE

AUXILIARY

HALL

MAIN ARCHITECTURE

Scale of Feet



20 feet

MUNICIPAL TECHNICAL SCHOOL, QUEENSTOWN

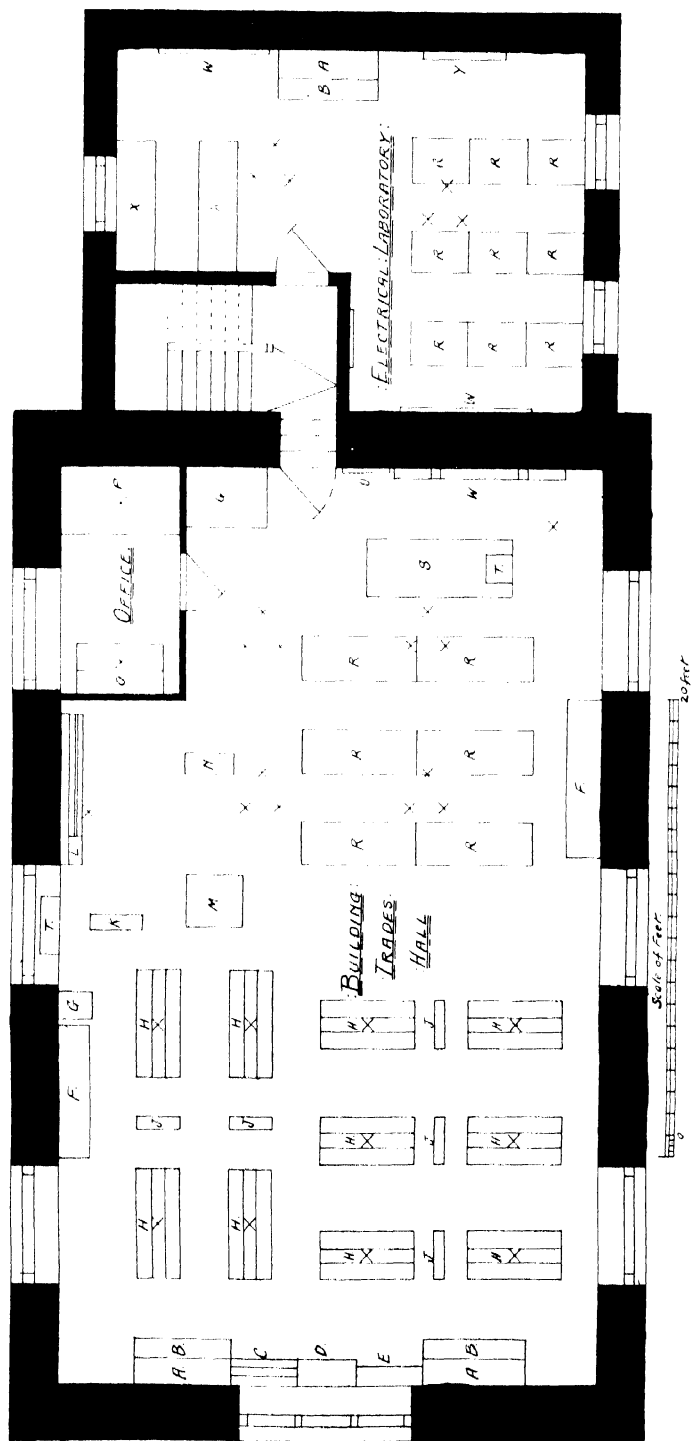


Fig. 3.—First Floor Plan. (See Key at end of article.)

It will also be observed that the tendency since the beginning has been towards subjects of Applied Science and Technology, the whole of the students in the school during the past and present sessions being mechanics from the Royal Dockyard, the local Electrical Generating station, and young men engaged in the Building Trades of the town. It is gratifying to record that those at the head of the industrial concerns are very sympathetic to the school and its work. The local employers in the trades named insist on their apprentices taking up a course at the school.

Very successful was the work of the first year, but as time went on it soon became evident that a building in a central position, entirely devoted to work of a technical nature, was very necessary if real and definite progress was to be made.

**The need of suitable
Buildings.**

The report of the Department's Inspector on the work of the session 1903-1904 contained the following passage:—

“The only building at present to be obtained in Queenstown is difficult of access, and not at all central. Moreover, since the Committee has this year reorganized the teaching of Engineering in Queenstown a properly equipped Metal Shop is necessary for efficient work.”

The work of the third session (1904-1905), was continued in the old premises, and the need of properly equipped rooms was more keenly felt than before.

PART III.—THE SCHOOL BUILDINGS AND EQUIPMENT.

Fortunately, at the beginning of the year 1905 an opportunity occurred of acquiring a suitable building in a convenient situation. The Queenstown Young Men's Society moved into more commodious premises, and the building occupied by them up to that time became vacant.

The writer was requested by the Committee to prepare plans of this building with a view to reconstructing and rendering it suitable for a Technical School.

Roughly, the building (fig. 1) consisted of a main hall of great height (22 feet), with rooms attached which were originally used as a dwelling-house.

The scheme of reconstruction consisted of the insertion of an additional floor in the main hall, thereby giving double the accommodation previously existing.

Areas of Lecture

Rooms. The smaller rooms needed new floors and general overhauling. An entirely new sanitary system was installed. The total cost of these alterations amounted to £420. The resulting available rooms being :—

Engineering hall,	. . .	42 feet by 28 feet by 13 feet.
Building Trades hall,	. . .	42 feet by 28 feet by 13 feet.
Naval Architecture room,	. . .	24 feet by 10 feet by 12 feet.
Electrical Laboratory,	. . .	24 feet by 11 feet by 11 feet.
Art room,	. . .	24 feet by 12 feet by 12 feet.
Entrance hall.		
Store room.		
Lavatory.		

The whole of the rooms are lighted by means of electricity, a 230 volt continuous current being obtained from the local power station. This light has proved most satisfactory.

The small lecture rooms are all heated by means of open coal fires. The engineering and building trades' halls are warmed by gas condensing radiators. These will be clearly distinguished in the illustrations (figs. 4 and 6). The advantage possessed by this radiator is that no fume chamber or flue for the escape of impure gases is required ; in this case the waste gases make their way through a continuous coil of pipes, and leave the stove in a liquid state, the amount of condensed fluid per day of twelve hours being about $7\frac{1}{2}$ pints.

The rooms are ventilated by natural means ; the fresh air is admitted by means of Tobin tubes, and the foul air extracted by Boyle's air pumps.

The whole of the school furniture was specially designed to suit the requirements of each department. A point worth recording is, that all these fittings were made in the locality, a proceeding which has since proved to have been fully justified. The quality of the materials used, the workmanship, and the reasonable cost compare most favourably with the usual type of "stock" school furniture.

The desks used in all the rooms are capable of being easily adjusted, a feature which is imperative in a Technical School. They can be used at a high or a low level, and at a steep or small inclination.

MUNICIPAL TECHNICAL SCHOOL. QUEENSTOWN.

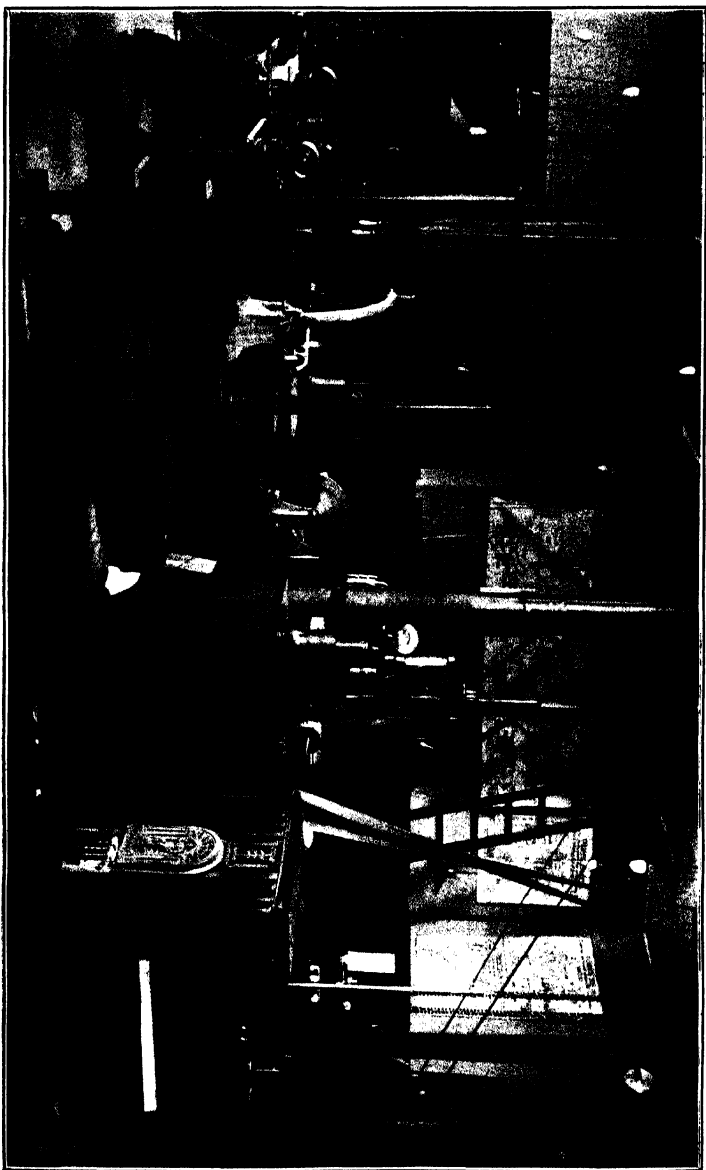


Fig. 4.—Mechanical Engineering Hall.

MUNICIPAL TECHNICAL SCHOOL, QUEENSTOWN



Fig 5.—Handicraft Section of the Building Trades Hall.

They are thus suitable for the tall or the short pupil, for draughtsmanship, experimental science or mechanics, for drawing or penmanship. The seating accommodation consists entirely of bow-backed chairs.

The cost of fittings and furniture is as follows :—

Adjustable Desks, 90 places, . . .	£91	17	6
2 Drawing Apparatus Cabinets, . . .	8	12	0
3 Balanced Blackboards, . . .	14	4	0
50 feet run Linoleum, do., . . .	5	0	0
10 Manual Instruction Benches, 20 places, . . .	28	15	0
2 Sawing Stools, . . .	0	9	6
6 Notice Boards, . . .	1	19	0
1 Metal Working Bench, 50 feet long, . . .	19	10	0
7 Apparatus Cupboards, . . .	42	0	0
2 Nests of 12 Lockers, . . .	8	17	0
2 Demonstration Tables, . . .	12	8	0
6 Standard Tool Racks, 20 sets tools, . . .	7	0	0
90 Bow-backed Ash Chairs, . . .	13	10	0
Total, . . .	£254	2	0

PART IV.—INTERNAL ARRANGEMENT OF THE SCHOOL.

Description of Rooms.

The ground-floor plan (fig. 2), clearly shows the arrangement adopted in this Department. The Engineering Hall

Engineering Hall. (fig. 4), is divided equally, one end being used for written work and experimental science, the other being entirely devoted to practical work in mechanics and machine work. One side wall is taken up with a metal working bench for 12 pupils, and part of the other side wall with a temporary Chemical bench.

The machinery is driven by a 5 h.p. Electro Motor, the power being transmitted by leather belting running over split wooden pulleys. The cost of the equipment of the room, which is very complete, was as follows :—

Machine Tools, . . .	£172	0	0
Mechanical Apparatus, . . .	208	0	0
Metal-working Hand Tools, . . .	76	0	0
Physical Apparatus, . . .	60	0	0
Chemical Apparatus, . . .	30	0	0
Total, . . .	£546	0	0

duties in Passage West (a small town on the harbour with a shipbuilding yard) and was also engaged in the teaching of handicraft in day secondary schools.

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Magnetism and Electricity,	—	—	—	—	61
Total,	1115	758	1045	1006	1039

MUNICIPAL TECHNICAL SCHOOL, QUEENSTOWN

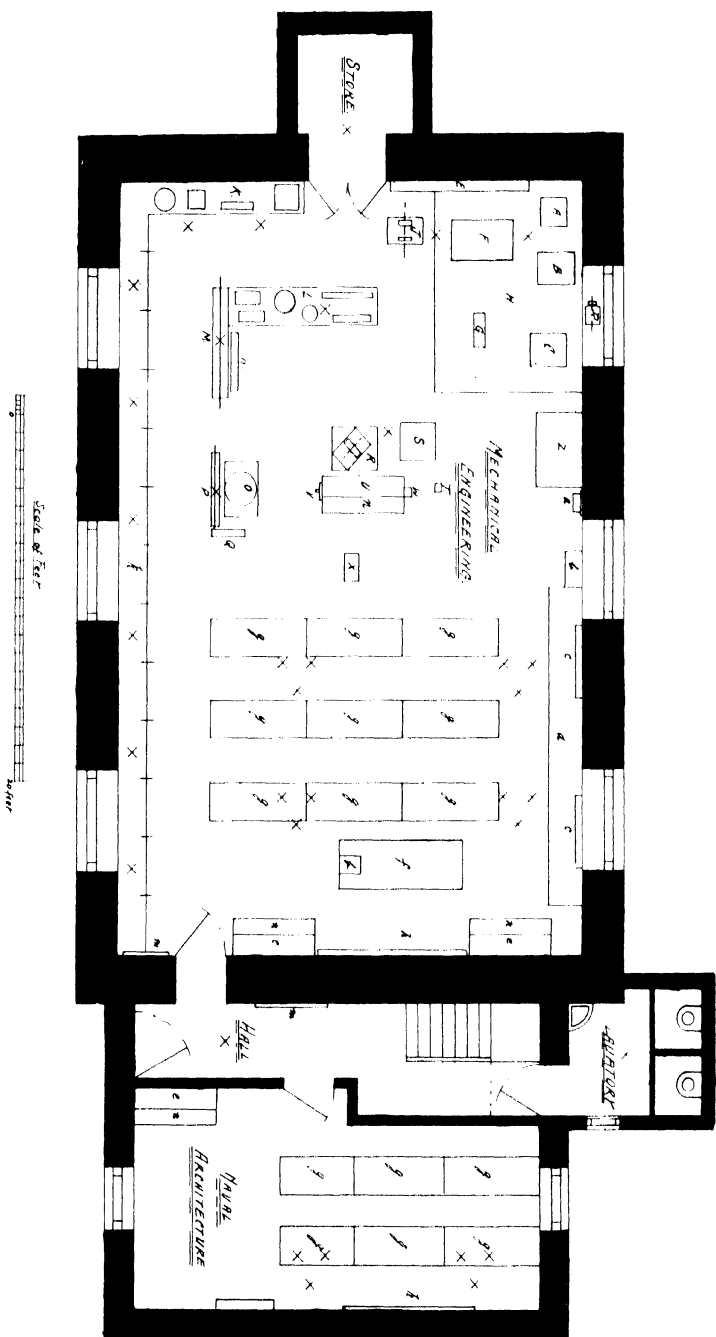


Fig. 2.—Ground Floor Plan. (See Key at end of article.)

MUNICIPAL TECHNICAL SCHOOL, QUEENSTOWN

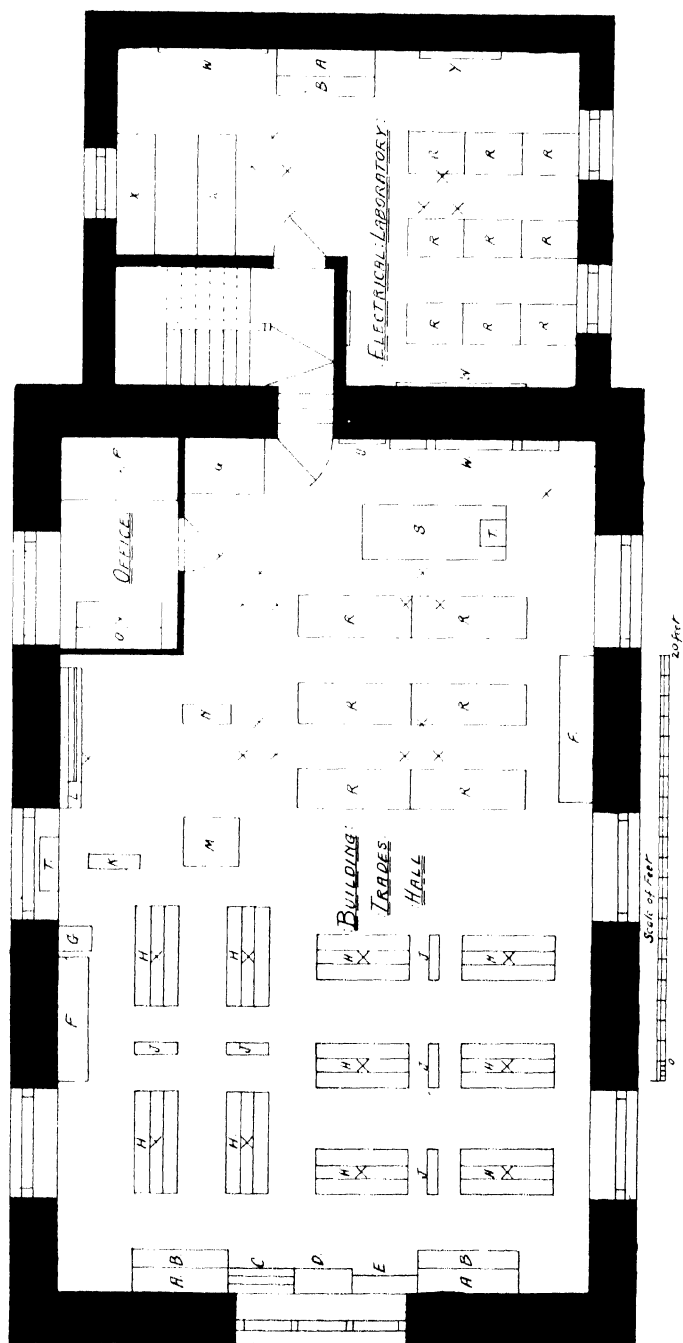


Fig. 3.—First Floor Plan. (See Key at end of article.)

It will also be observed that the tendency since the beginning has been towards subjects of Applied Science and Technology, the whole of the students in the school during the past and present sessions being mechanics from the Royal Dockyard, the local Electrical Generating station, and young men engaged in the Building Trades of the town. It is gratifying to record that those at the head of the industrial concerns are very sympathetic to the school and its work. The local employers in the trades named insist on their apprentices taking up a course at the school.

Very successful was the work of the first year, but as time went on it soon became evident that a building in a central position, entirely devoted to work of a technical nature, was very necessary if real and definite progress was to be made.

**The need of suitable
Buildings.**

The report of the Department's Inspector on the work of the session 1903-1904 contained the following passage:—

“The only building at present to be obtained in Queenstown is difficult of access, and not at all central. Moreover, since the Committee has this year reorganized the teaching of Engineering in Queenstown a properly equipped Metal Shop is necessary for efficient work.”

The work of the third session (1904-1905), was continued in the old premises, and the need of properly equipped rooms was more keenly felt than before.

PART III.—THE SCHOOL BUILDINGS AND EQUIPMENT.

Fortunately, at the beginning of the year 1905 an opportunity occurred of acquiring a suitable building in a convenient situation. The Queenstown Young Men's Society moved into more commodious premises, and the building occupied by them up to that time became vacant.

The writer was requested by the Committee to prepare plans of this building with a view to reconstructing and rendering it suitable for a Technical School.

Roughly, the building (fig. 1) consisted of a main hall of great height (22 feet), with rooms attached which were originally used as a dwelling-house.

The scheme of reconstruction consisted of the insertion of an additional floor in the main hall, thereby giving

Areas of Lecture double the accommodation previously existing.

Rooms. The smaller rooms needed new floors and general overhauling. An entirely new sanitary

system was installed. The total cost of these alterations amounted to £420. The resulting available rooms being :—

Engineering hall,	. . .	42 feet by 28 feet by 13 feet.
Building Trades hall,	. . .	42 feet by 28 feet by 13 feet.
Naval Architecture room,	. . .	24 feet by 10 feet by 12 feet.
Electrical Laboratory,	. . .	24 feet by 11 feet by 11 feet.
Art room,	. . .	24 feet by 12 feet by 12 feet.
Entrance hall.		
Store room.		
Lavatory.		

The whole of the rooms are lighted by means of electricity, a 230 volt continuous current being obtained from the local power station. This light has proved most satisfactory.

The small lecture rooms are all heated by means of open coal fires. The engineering and building trades' halls are warmed by gas condensing radiators. These will be clearly distinguished in the illustrations (figs. 4 and 6). The advantage possessed by this radiator is that no fume chamber or flue for the escape of impure gases is required; in this case the waste gases make their way through a continuous coil of pipes, and leave the stove in a liquid state, the amount of condensed fluid per day of twelve hours being about $7\frac{1}{2}$ pints.

The rooms are ventilated by natural means; the fresh air is admitted by means of Tobin tubes, and the foul air extracted by Boyle's air pumps.

The whole of the school furniture was specially designed to suit the requirements of each department. A point

Equipment. worth recording is, that all these fittings were made in the locality, a proceeding which has since proved to have been fully justified. The quality of the materials used, the workmanship, and the reasonable cost compare most favourably with the usual type of "stock" school furniture.

The desks used in all the rooms are capable of being easily adjusted, a feature which is imperative in a Technical School. They can be used at a high or a low level, and at a steep or small inclination.

MUNICIPAL TECHNICAL SCHOOL. QUEENSTOWN.

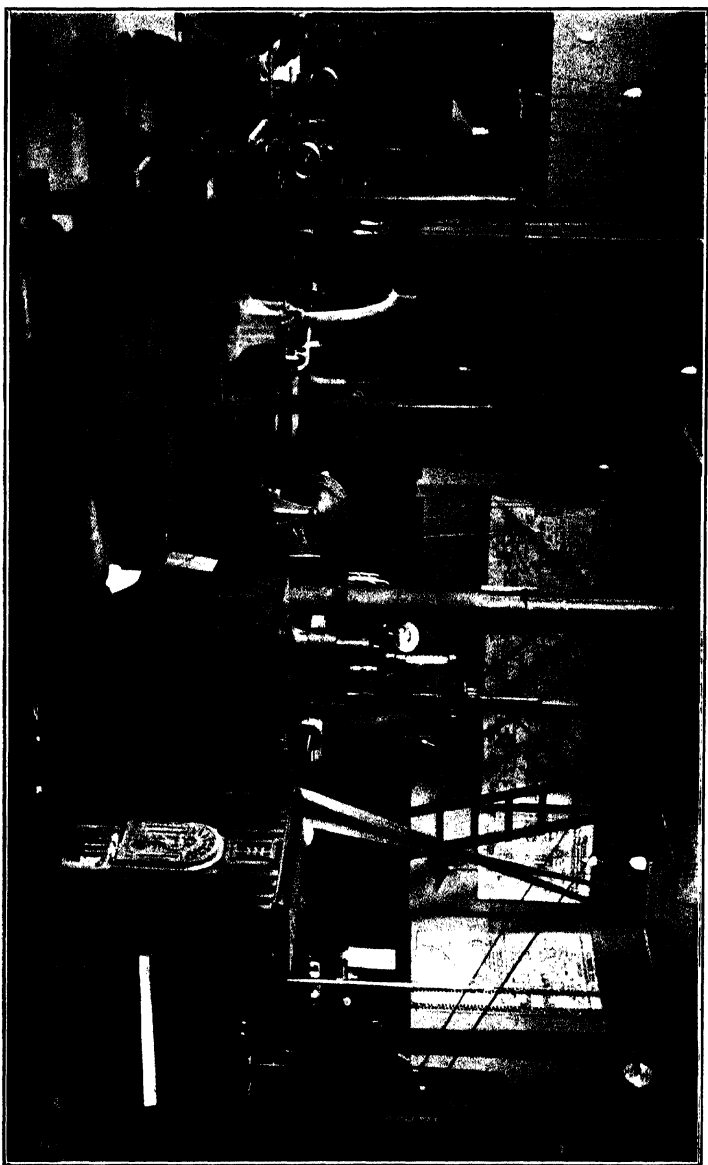


Fig. 4.—Mechanical Engineering Hall.

MUNICIPAL TECHNICAL SCHOOL, QUEENSTOWN

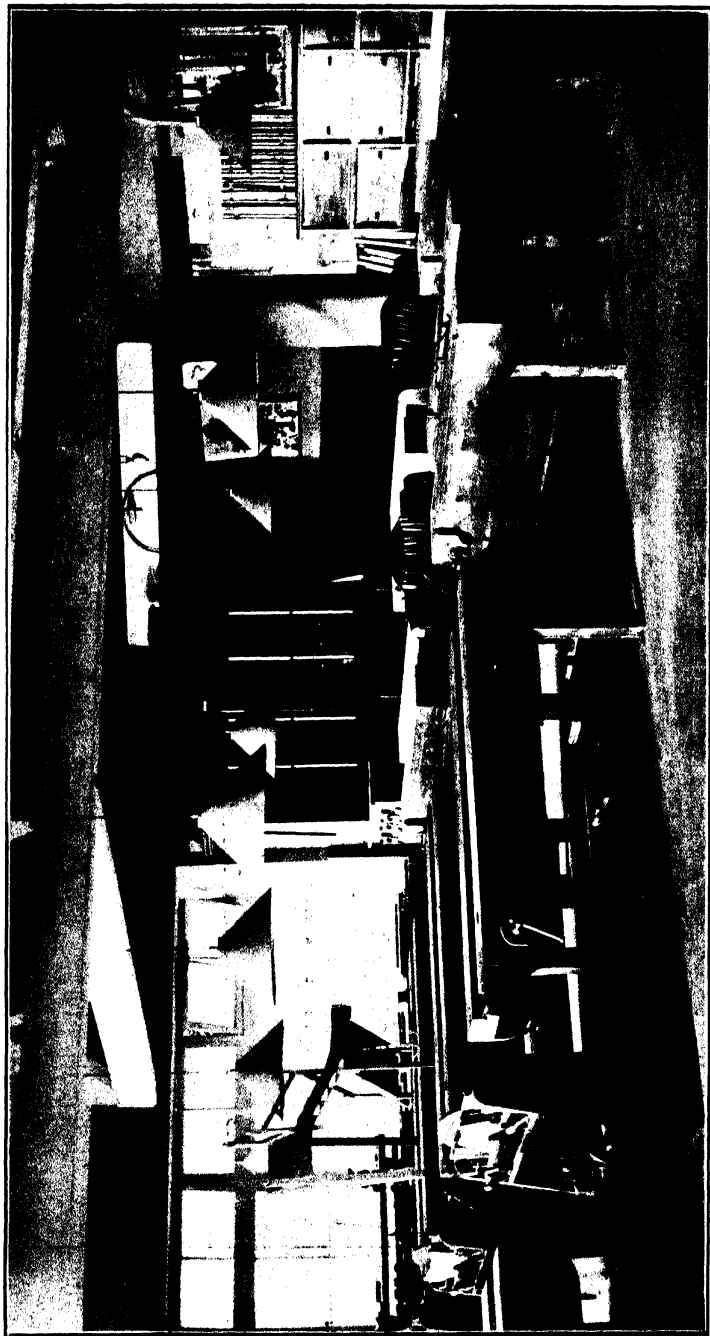


Fig 5.—Handicraft Section of the Building Trades Hall.

They are thus suitable for the tall or the short pupil, for draughtsmanship, experimental science or mechanics, for drawing or penmanship. The seating accommodation consists entirely of bow-backed chairs.

The cost of fittings and furniture is as follows :—

Adjustable Desks, 90 places, . . .	£91	17	6
2 Drawing Apparatus Cabinets, . . .	8	12	0
3 Balanced Blackboards, . . .	14	4	0
50 feet run Linoleum, do., . . .	5	0	0
10 Manual Instruction Benches, 20 places, . . .	28	15	0
2 Sawing Stools, . . .	0	9	6
6 Notice Boards, . . .	1	19	0
1 Metal Working Bench, 50 feet long, . . .	19	10	0
7 Apparatus Cupboards, . . .	42	0	0
2 Nests of 12 Lockers, . . .	8	17	0
2 Demonstration Tables, . . .	12	8	0
6 Standard Tool Racks, 20 sets tools, . . .	7	0	0
90 Bow-backed Ash Chairs, . . .	13	10	0
Total, . . .	£254	2	0

PART IV.—INTERNAL ARRANGEMENT OF THE SCHOOL.

Description of Rooms.

The ground-floor plan (fig. 2), clearly shows the arrangement adopted in this Department. The Engineering Hall

Engineering Hall. (fig. 4), is divided equally, one end being used for written work and experimental science, the other being entirely devoted to practical work in mechanics and machine work. One side wall is taken up with a metal working bench for 12 pupils, and part of the other side wall with a temporary Chemical bench.

The machinery is driven by a 5 h.p. Electro Motor, the power being transmitted by leather belting running over split wooden pulleys. The cost of the equipment of the room, which is very complete, was as follows :—

Machine Tools, . . .	£172	0	0
Mechanical Apparatus, . . .	208	0	0
Metal-working Hand Tools, . . .	76	0	0
Physical Apparatus, . . .	60	0	0
Chemical Apparatus, . . .	30	0	0
Total, . . .	£546	0	0

The system prevailing in the Building Trades Hall (figs. 5 and 6), is on similar lines to that of the Engineering Department, namely—One end devoted to practical and the other to theoretical work.

The woodworking machinery is driven by the motor stationed in the hall below.

The hand tools are stored in standard racks (fig. 7), placed between the benches, a very satisfactory method, as at a glance it can be seen whether a tool is missing or not. Since these racks were installed there has not been an instance of any tool going astray.

A good supply of apparatus exists for providing instruction in the several subjects taught in this section. The cost of the apparatus is given below :—

Woodworking Machinery, . . .	£45	0	0
Hand Tools, . . .	50	0	0
Models, Diagrams, and Specimens, . . .	70	0	0
Drawing Apparatus, . . .	25	0	0
<hr/>			
Total, . . .	£190	0	0

Before the cessation of the Commercial Classes the room now used as an Electrical Laboratory was availed of for giving instruction in subjects of a commercial character. At the beginning of the session 1906-07 it became necessary to make provision for instruction in Electrical subjects, and this room was used for the purpose. An equipment costing a sum of £50 was procured, this has proved ample for the elementary stages, but a greater variety will be required to enable the higher instruction necessary in Electro-Technology.

The furnishing of the Naval Architecture room is similar in all respects to other Departments. But suitable teaching apparatus is not obtainable for providing instruction in ship-building, consequently much depends on the Instructor-in-charge of the course. Queenstown has been particularly fortunate in obtaining a teacher who has prepared a very extensive set of diagrammatic illustrations depicting modern forms of ship construction in a very lucid manner.

MUNICIPAL TECHNICAL SCHOOL, QUEENSTOWN.



Fig. 6.—Power driven Machinery in Building Trades Hall.

MUNICIPAL TECHNICAL SCHOOL, QUEENSTOWN.

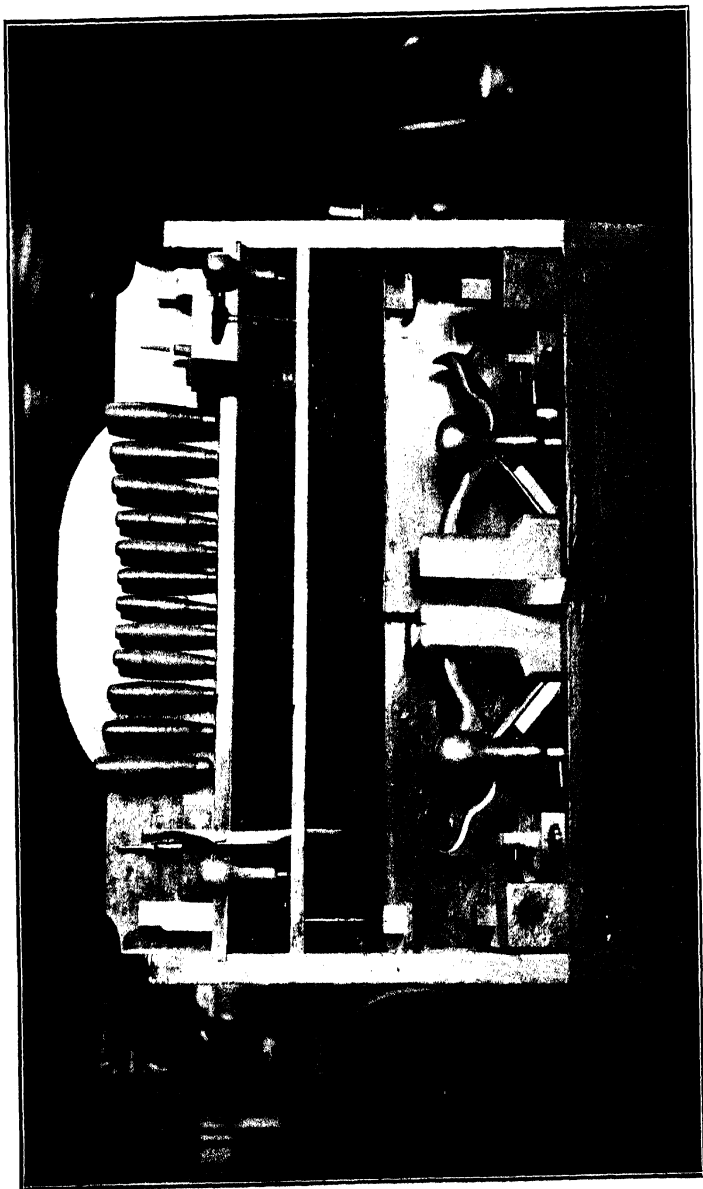


Fig. 7.—A Handcraft Tool Rack

There have been no Art classes held for the last two years. Nevertheless the Art room has a very complete set of teaching models of the value of £60. The non-success in this section was undoubtedly caused by the frequent change of teachers, as many as four individuals from time to time conducted the classes during the three Sessions they were in operation.

When the Committee are able to allot to Queenstown one of their permanent County Art teachers, there will be no doubt as to the ultimate success of this very important branch of education.

PART V.—SCHEME OF INSTRUCTION.

(a.) *Evening Division.*

From previous remarks, and the statistical tables, it will be gathered that the evening classes are exclusively made up of the artisan type of pupil, and though the numbers are not considerable, the classes constitute a representation of Technical Education in its true sense. In small communities the besetting danger has always been the lowering of the standard of instruction, so as to make the syllabuses palatable to those who are not members of a particular trade or profession. If this method is resorted to, there can be one result only, namely, the production of the "handyman." Consequently the sympathies of the trades towards Technical Education are effectively divorced.

Surely, the chief work of an Evening Technical School should be the rendering of assistance to the few, so as to enable them to raise themselves above the ordinary and to pass on to further advancement. It is sheer waste of labour to endeavour to give a polish to lead, but by extracting the small percentage of silver, a high polish ensuring highly advantageous results can be imparted to the rarer metal.

In a speech made on the occasion of the distribution of certificates on October 17 last, Mr. Fletcher said:—"They had a Technical School in Queenstown equipped in such a manner that I venture to say, for its size and character, it is one of the best in the Three Kingdoms. While there were not a very large number of students, they were students of a type that they needed for a Technical School."

Rear-Admiral King-Hall, C.V.O., at the same function, said:—

"They were awaking to the fact that if they wanted to compete and win their battles in the commercial field where victories were really made and won, it was through these technical classes, and the commercial training to which he had alluded that they must succeed."

An ever present difficulty in Technical Schools where the supply of pupils is limited, is, how to provide for the trades possessing few representatives. Take as an example, plumbing. The formation of a class at this school in this most important subject would not be warranted ; nevertheless, it seems hard that a young plumber willing to learn something of his trade, should be turned away. Cases of this kind are frequently cropping up, and a good deal has been accomplished concerning them. The young aspirant is enrolled a member of a class allied to his business, and allowed to specialise in his own particular line. The illustration (fig. 9) of the Hot Water Apparatus shows what a boy of 17 years of age has done during the present Session ; this kind of practical work, together with theoretical work on Water Supply, can be done under the guidance of the Instructor in the department to which the pupil belongs.

A 24-foot Admiralty Gig to a scale of one-sixth full size is in the process of being made in the Practical Woodworking Class, the drawings having previously been made in the class in Naval Architecture.

These two examples show that the difficulty can be tackled in a profitable manner. The future of Technical Education in small towns must depend largely upon the solution of this difficulty.

TABLE SHOWING OCCUPATION OF STUDENTS IN EVENING DIVISION.

Shipwrights,	14
Mechanical Engineers,	13
Electrical Engineers,	13
Boilermakers,	6
Plumbers,	4
Schoolboys,	3
Ship Fitters,	2
Plater,	1
Blacksmith,	1
Builder's Clerk,	1
Joiners,	10
Total,	68

(b.) *Day Trades Preparatory School.*

Before the opening of the new premises—in 1905—there was a great need in the district for a school in which the training would produce an efficient boy, well grounded in the elements of science, and possessed of a training in Manual Work such as would better fit him for entry to the workshop.

MUNICIPAL TECHNICAL SCHOOL, QUEENSTOWN.

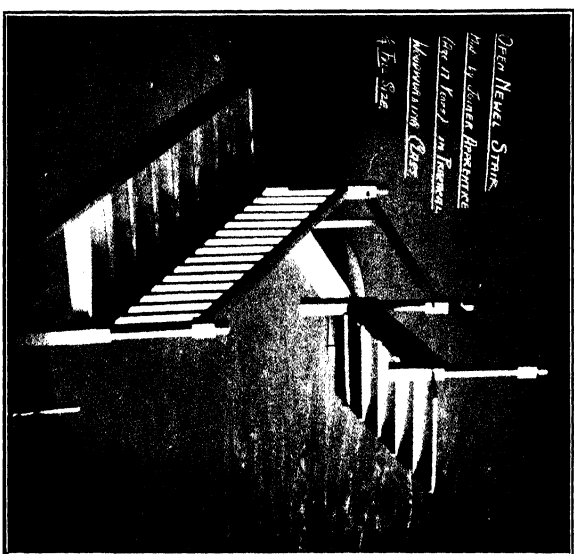


Fig. 8.—Model Staircase.
(Made by an Apprentice, aged 17 years.)

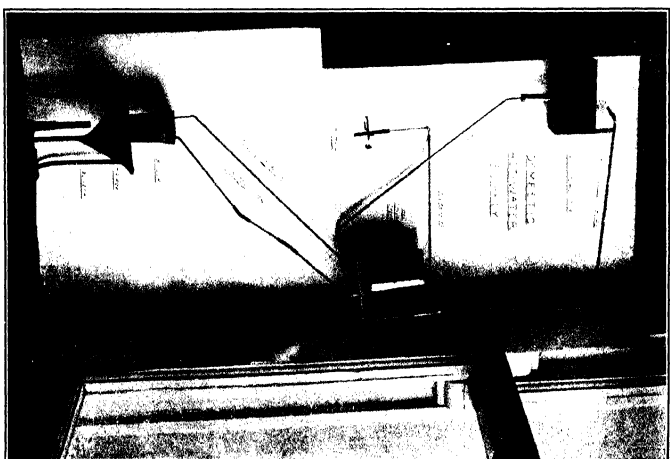


Fig. 9.—Model Hot water Apparatus.
(Made by an Apprentice, aged 17 years.)

The courses of the Day School were framed to fulfil this idea. Without doubt, this training for the trades forms a most important part in the fabric of Technical Education in this country.

The words of the Most Rev. Robert Browne, D.D., Lord Bishop of Cloyne, may be quoted from the speech made at the meeting held for the distribution of certificates.

“As the Prospectus stated—and they knew even from a short experience—boys who went through the complete course would be well equipped to enter upon their life's work in the workshops; they would have acquired that scientific habit of mind which would qualify them to enter intelligently into the more intricate problems which were a part and parcel of all trades. When that preliminary training became reinforced with practical experience, they would be bound to rise to positions of great responsibility.”

The school provides a three years' course, the time devoted to each being set out below. Up to the present it has been a hard matter to persuade the parents to allow the boys to remain in the school for the completion of the courses. This has the effect of depleting the numbers in the second and third years.

TABLE SHOWING, IN HOURS, THE ALLOCATION OF SUBJECTS IN DAY
TRADES PREPARATORY SCHOOL.

	1st Year.	2nd Year.	3rd Year.
Elementary Science,	7	8	9
Drawing,	3	3	4
Handicraft,	4	4	4
English,	5	4	3
Language (Irish or French), .	3	3	3
Mathematics,	5	5	4
Drill,	1	1	1
	—	—	—
Weekly total in hours, . . .	28	28	28
	—	—	—

PART VI.—SOME RESULTS.

During the first year 21 boys were enrolled and a most successful session was the result. Unfortunately for the school 5 of these were successful in passing the Entrance Examination to H. M. Dockyards at the end of the year.

It may be of interest to give the present occupations of the 21 boys forming the roll of the school in its first year (1905-'06) :—

Joiners,	4
Electrical Engineers,	3
Shipwrights,	2
Apprentices (Mercantile Marine),	2
Storeboy,	1
Mechanical Engineer,	1
Still in the School,	3
No trace,	5
Total,	21

The second year did not open under as favourable circumstances as might have been wished, there only being 19 on the roll ; those of the first year course who secured positions being a great loss. The present Session promises to be very successful, the number in attendance being 18.

It is possible that the opportunities which this school offers will not be partaken of to the full until a system of free studentships is established and the Elementary Schools of the district act as a contributory.

A striking testimony to the value of this preliminary training is found in the evening division, those who passed through the Day Trades Preparatory School, in the first and second years, being particularly well qualified to profit by the instruction in the classes of a technical character.

It has not been possible, in the provided space, to do more than touch lightly upon the school and its work, but enough has been written to show that, by adapting the courses of work "to local needs," much can be done in the way of producing trained workers who will be capable of combining science with industry.

APPENDIX.

A.—KEY TO GROUND FLOOR PLAN SHOWING EQUIPMENT ARRANGEMENT.

A.—Electro Motor, 5 H. P.

B.—Brazing Hearth, blow pipe fitted.

C.—Forge, with blast from Compressor.

A.—KEY TO GROUND FLOOR—*continued.*

- D.—Air Compressor, "Crowell."
- E.—Rack for Bar Iron and Steel.
- F.—Marking-off Table.
- G.—Anvil.
- H.—Platform, composed of Sleepers.
- J.—Grinding Machine, combined tool and twist drill.
- K.—Bench containing :—Experimental Jib Crane, Iron Carriage with coggled wheels, Pulley Friction Machine, Marcet Boiler.
- L.—Bench containing :—Deflection Bed, Inclined Plane Friction, Fluid Friction, Screw Jack, Torsion Modulus, etc.
- M.—Screwcutting Lathe, 6-ft. bed.
- N.—Weight Rack.
- O.—Centrifugal Force Machine.
- P.—Screwcutting Lathe, 3 ft. 6 in. bed.
- Q.—Ballistic Pendulum.
- R.—Mounted Flywheel.
- S.—Sensitive Drilling Machine.
- T.—Attwood's Machine.
- U.—Exhibiting Cases containing Mechanical and Physical Apparatus.
- V.—Compound Wheel and Axle.
- W.—Torsional Vibrations of Spiral Spring.
- X.—Gas Condensing Radiator.
- Z.—Drawing Apparatus Case.
- a.—Switch Board.
- b.—Water Tanks.
- c.—Glass shelves for Re-agent bottles.
- d.—Chemical Benches (temporary).
- e.—Exhibiting Cases containing Chemical, Physical and other apparatus.
- f.—Demonstration Table.
- g.—Adjustable Desks.
- h.—Balanced Blackboards.
- k.—Metal working Bench, accommodation for twelve pupils, each place provided with one drawer and two lockers.
- m.—Notice Boards.
- n.—Store Cupboards containing various materials.

The crosses denote the lighting arrangement ; the lamps are electrical incandescent, and vary in power from 16 to 32 C. P.

**B.—KEY TO FIRST FLOOR PLAN SHOWING EQUIPMENT
ARRANGEMENT.**

- A.—Exhibiting Cases (glass doors) containing courses of work in wood, metal and cardboard, and collection of minerals (200.) Case in electrical laboratory contains apparatus for first and second year magnetism and electricity.
- B.—Store Cupboards, containing materials for use in building trades and electrical classes.
- C.—Stepped Rack for Special Tools, *e.g.*, gouges, mortise chisels, dove-tail saws, brace bits, compasses and pincers.
- D.—Sharpening Bench, linoleum covered, 3 oilstones.
- E.—Saw-sharpening Bench, with engineer's vise and clamps
- F.—Lockers, with "lift-pull" doors (12 compartments), one for books and drawings, other for practical work.
- G.—Driving Belt and Ventilation Shaft.
- H.—Woodworking Benches, fitted with two drawers, vises and eccentric adjustable stops.
- J.—Standard Tool Racks, each with four sets tools.
- K.—Grinding Stone, power or hand, with metal canopy containing water supply tank.
- L.—Wood-turning Lathe, varying speeds (400 to 1,700).
- M.—Band-sawing Machine, with adjustable table and guide fence.
- N.—Gas Condensing Radiator.
- O.—Roll-top Desk.
- P.—Typewriting and Duplicator Table.
- Q.—Drawing Apparatus Case, containing sets of 20 $\frac{1}{4}$, $\frac{1}{2}$ and imp. size boards with tee-squares, set-squares, protractors, scales, compasses, colours and drawing paper-drawer.
- R.—Adjustable Desks, with inks in brass slide covers, position can be changed from low horizontal to inclined and high horizontal.
- S.—Instructor's Demonstration Table, with gas supply, 5 drawers and locker.
- T.—Water Tanks.
- U.—Notice Boards.
- W.—Balanced Blackboards.
- X.—Benches for Practical Electrical Work.
- Y.—Fire Grate.

The crosses denote the lighting arrangement, the lamps are electrical incandescent and vary in power from 16 to 32 C.P.



Branch showing leaves, wood, and fruit attacked with
American Gooseberry Mildew.

W.F.W., DUBLIN.

AMERICAN GOOSEBERRY MILDEW.

This destructive fungoid pest has been traced to several counties in Ireland. It appears to be most prevalent in low situations, on damp soils, and on bushes grown in the shade of other trees. Both young and old bushes are equally susceptible to attack, and there is no variety which can be said to be immune or resistant to it. The disease is extensively distributed in England, and the Department, to protect growers in this country from the further introduction of the disease, have issued an Order which, amongst other things, prohibits the importation of gooseberry bushes into Ireland from Great Britain or elsewhere.

The Order should be carefully read, as well as this article, in which are stated the principal facts connected with the nature, appearance, and prevention of the disease.

In this country the mildew is nearly always first noticed in the early summer, towards the middle of May, on the young berries, but if a careful lookout is kept it may often be seen earlier than this on the young leaves as they are unfolding, or soon afterwards. Whatever the parts attacked, the mildew in its early stages presents the appearance of a white powdery or cottony coating, which, after on, changes to a brownish, velvety or felted covering, noticeable especially on the berries, but which is also found on the portions of the twigs of the current year's growth. This brown coating can easily be scratched off with the finger nail, and if it be closely examined, especially with a strong pocket lens, large numbers of minute, black, rounded bodies will be seen crowded together, which are barely visible to the naked eye. These are the structures in which the mildew passes the winter. A glance at the coloured illustration accompanying this article will give a very good idea of the appearance of the mildew on the gooseberry at a fairly advanced stage in the summer. In some cases, but by no means in all, the diseased twigs after the leaves have fallen, in addition to having patches of this brown coating on them, present a withered and bent appearance, especially at their tips, but the same appearance is often due to other causes, and very often an apparently normal looking twig will be found on close inspection to have the disease on it.

The mildew is a parasitic fungus whose body consists of numerous slender, branching, interwoven threads or tubes

**Nature of the
Mildew.**

which creep over the surface of the young twigs, leaves, and berries, sending into them sucker, like organs or "roots" which absorb the juices of the plant. Owing to this loss of sap the affected berries and young shoots are sometimes misshapen and the berries do not ripen properly, or may fall off. When young these creeping threads are white, and from them a number of branches arise which project from the surface and produce at their extremities numerous white conidia or spores in chains (Fig. 1). The production of myriads of these spores causes the



FIG. 1.—One of the projecting threads of the mildew, as seen under the microscope, producing a chain of summer spores, one of which is shown detached. Highly magnified.

powdery appearance described above, and this floury material is highly infectious, since a mere speck of it consists of many spores, each of which is capable of germinating if it falls on a young twig, leaf, or berry, and thus producing the mildew anew. During the summer then, these pores serve to disseminate or spread the disease from bush to bush and if carried any distance (as they easily are) by the wind, insects, birds, or even the clothes of individuals, serve to start fresh centres of disease in other gardens. As the season advances fewer of these summer spores are produced, and the creeping threads become brown and felted. On these threads large numbers of minute, rounded, blackish fungus "fruits" now arise, only just visible to the naked eye (Fig. 2). The walls of these "fruits" are firm and highly resistant both to cold and to ordinary spray fluids. Within each is a single sporebag which contains eight oval spores. These "fruits" are attached chiefly to the wood of the current year's growth, but may also reach the soil with fallen diseased berries or neglected prunings of affected bushes, and there remain dormant till next spring.

In spring the fungus "fruit" bursts, as illustrated in Fig. 3, the spore bag emerges, and the eight spores are then liberated, which, reaching the freshly opening leaves, germinate there and produce once more the powdery stage described above. By means of these "fruits"

the fungus is continued from one season to the next, and by this means also, if infected bushes or berries are distributed, the disease is carried from place to place.

It is of the utmost importance that wherever gooseberries are grown (and probably there is scarcely a garden where this is not the case), a very careful watch should be kept for the first appearance of any signs of the mildew. In the first season of attack the actual damage done may appear small, and fatal neglect may ensue: for, when once the mildew has seriously established itself, as it does in a season or so, its ravages become worse and worse and its eradication becomes a matter of extreme difficulty. Immediately any suspicious signs are observed a specimen showing the suspected disease should be forwarded, preferably in a small tin box, by letter post addressed to

The Secretary,

Department of Agriculture and Technical

Instruction for Ireland,

Upper Merrion-street, Dublin.

Letters so addressed do not require to be stamped. If the presence of the disease is confirmed, energetic measures should be taken without delay.

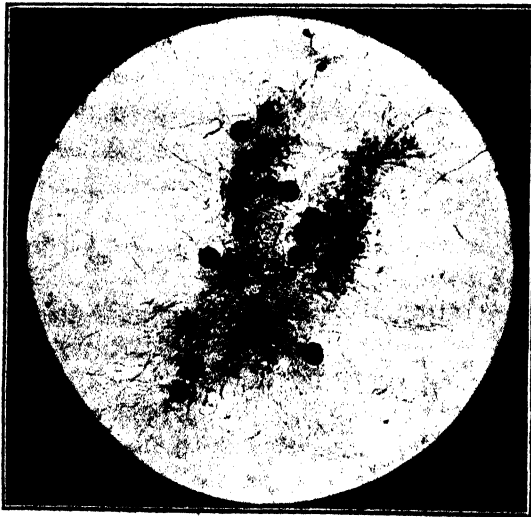


FIG. 2.—A small portion of the brown felted coating which is found on the berries and twigs, showing the rounded black "fruits" in which the mildew passes the winter. (Considerably enlarged.)

Without doubt the very best course to pursue is to burn the affected bushes. In the winter, when they are bare of foliage and when the mildew is in its dormant condition on the twigs, the affected brushes should be entirely grubbed up and burned, care being taken not to break off and leave behind any twigs. Further, during the whole of the following spring and summer the remaining bushes should be sprayed with a solution of liver of sulphur (see below) at intervals of about a fortnight, beginning with a weak solution, when the buds are opening, and following on with the normal or a stronger one. Should any signs of the mildew appear subsequently on the young tips of the shoots or on the berries, these should be removed at once and burned.

In the summer, when the mildew is in its active condition, the risk of scattering the highly infectious spores from affected to healthy bushes by the removal of the former, necessitates their being killed with the mildew on them as they stand. For this purpose the affected bushes may be either (1) sprayed with a strong solution of *copper sulphate* (not Bordeaux Mixture), 1lb. dissolved in one gallon of water, and the bushes removed and burned in two or three days when dead, or if circumstances permit, (2) set fire to on a dry day as they stand, after previous spraying with paraffin oil, some dry straw, wood wool, or newspaper being placed amongst the branches to ensure thorough burning. Any berries which may have fallen off and escaped treatment must be collected and burned. Having destroyed the affected bushes by either of these two methods the remaining bushes must be thoroughly sprayed with the liver of sulphur solution of normal strength, and this spraying must be kept up at intervals for the remainder of the season. Immediately after the removal of the diseased bushes the soil lately occupied by them should be dug over in such a way as to completely bury the surface portion of it.

If for some special reason it is found impossible to burn the diseased bushes, and, as described above, to spray those that are healthy the following course of treatment should be adopted. During the winter all bushes should be carefully spur pruned (i.e., all the young shoots of the previous year's growth should be cut back to one inch in length) and the suckers, if any, removed. The whole of the prunings must be most carefully collected and burned. As soon as the leaves begin to appear all the bushes should be sprayed with the liver of sulphur solution, beginning with a weak solution, and following it up with the normal one, at intervals of about a fortnight for the whole season, any diseased tips or berries appearing being instantly removed and burned.

If the bushes have not been spur pruned during the winter, and if they were badly infected during the previous season, spraying alone,

if carried out thoroughly and persistently, will keep the mildew in check, but in the end the destruction of such bushes will be found to be the most economical and safest procedure. Similarly, cutting off the affected



FIG. 3.—One of the mildew “fruits” artificially squeezed open, to illustrate the enclosed spore-bag with its eight spores. (Highly magnified.)

twigs and collecting the diseased berries and destroying them, accompanied by systematic spraying, may be tried when the mildew makes its appearance for the first time in a fresh locality in the summer, but here again destruction of the affected bushes followed by spraying the remainder will be the best treatment.

A spraying solution of normal strength is obtained by dissolving liver of sulphur (*potassium sulphide*, *potassa sul-*

Preparation of *phurata*) at the rate of two ounces for every
Spraying Solution. three gallons of water. Thus for forty gallons take a pound and three quarters of the liver

of sulphur, dissolve it in about a gallon of hot water, and make up to forty gallons. Under certain circumstances, as when the foliage is young and tender or when the weather is very hot and sunny, this strength may cause a scorching of the leaves or a falling of some of the berries. In this case a weaker solution at the rate of one ounce in two gallons should be used, but, on the other hand, in wet weather the solution on the bushes will be weakened and washed off by the rain, and a stronger solution than the normal may be used, taking, say, two pounds and a half of the sulphide to forty gallons of water.

The amount of solution required depends on the size of the bushes, but as a guide it may be taken that forty gallons will spray thoroughly four hundred bushes planted four years, but only about one hundred planted ten years. Only sufficient solution for immediate use should be prepared at one time, since it loses its efficiency as a fungicide on standing for some days.

Spraying should take place as far as possible on dry days, and to have the desired effect it must be thorough and persistent.

When a diseased plantation has been destroyed it would be unwise to plant gooseberries again on the same land for **Further Precautions** at least two years. Since the same mildew has also been known to attack the red currant in Ireland, bushes of this fruit should not be planted on such land.

Special attention should be paid to the purchase of new bushes. They should only be obtained from those who are prepared to give a written guarantee that the mildew has never made its appearance on their premises, or at least that their stocks have been certified by an Inspector as having been absolutely clean for three successive years. The growth of such newly purchased bushes during the following season should be closely observed. Bushes should not be purchased from itinerant and irresponsible vendors.

Recognising that the only way to check the ravages of this serious pest is to be found in the simultaneous and united efforts of all concerned, the Department of Agriculture and Technical Instruction for Ireland, in order to facilitate this co-operation, have recently made the Order under the Destructive Insects and Pests Acts, 1877 and 1907, referred to in the opening paragraph of this article, a copy of which may be obtained, post free, from the Secretary, as above. This Order renders necessary the notification of every case of this disease to the County Instructor in Horticulture, or to the Secretary to the County Committee of Agriculture, or to the Department direct. It details the measures to be enforced for the prevention of the spread of the disease and other particulars, including the penalties which will follow conviction on failure to notify or non-compliance with the terms of the Order. This Order applies also to the insect pest known as the Black Currant Mite.

In addition to the American Gooseberry Mildew, which is known under the scientific name of *Sphaerotheca mors-uvae*, there is another less serious one, the European or ordinary gooseberry mildew (*Microsphaera grossularia*). This mildew confines its attacks chiefly to the leaves, and is found but seldom on the berries. Its winter fruits are much more scattered, and it produces no brown felt-like coating on the twigs. It is kept well in check by spraying with liver of sulphur solution.

Copies of this Article in leaflet form (No. 76, Revised) may be obtained free of charge, and post free, on application to the Secretary, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion-street, Dublin. Letters of application so addressed need not be stamped.

PRESERVATION OF EGGS.

The following simple methods of preservation will be found useful as a means of regulating the supply of eggs for home consumption :—

Waterglass is a solution of silicate of soda. It is important to use waterglass of the best quality and of proper density. It may be obtained, as a rule, from all chemists.

A 10 per cent. solution is generally employed, *i.e.*, 1 lb. of water-glass to 1 gallon (10 lbs.) of water. A stronger solution is not recommended.

To prepare the mixture, add the waterglass to boiling water, and stir carefully until thoroughly mixed. Allow it to stand for twenty-four hours, as it must become quite cold before use.

The eggs may be placed in the preservative day by day as they are laid. The vessel should only be a little more than half filled with the liquid, which of course rises as the eggs are put in. Any eggs which float should be removed.

A freshly prepared solution is recommended for each lot of eggs.

A lime water preservative may be made according to the following
Lime Water. formula :—

Five gallons of cold water, $2\frac{1}{2}$ lbs. of finely slacked lime, $\frac{1}{4}$ lb. of salt, and $\frac{1}{4}$ lb. of cream of tartar.

The mixture should be stirred daily for a week, and at the end of that time, having allowed it to settle down after the final stirring, the clear liquid, which is then a saturated solution, should be poured off; it is then ready for use.

Another method is to cover the eggs, while they are still warm after laying, with a thin coating of fresh butter,

Another Method. lard, wax, or glycerine. The eggs should be placed broad end downwards on a perforated stand or shelf, and kept in a cool place.

POINTS TO BE OBSERVED.

April, May, and June are the best months for preserving. Eggs laid in hot weather do not keep so well as those laid when the weather is cold.

The eggs should be treated as soon after laying as possible, for preference the day they are laid, having allowed them time to cool. The

condition of the egg at the time it is placed in the preservative largely determines its value when removed.

Infertile eggs are to be preferred. Experience has proved that an infertile egg will keep in a satisfactory condition for a longer period than one containing a vitalised germ.

Cracked or damaged eggs should not be used for preserving. Soiled eggs should be washed before being placed in the preservative for the removal of any dirt adhering to the shell.

If a fertilised egg is subjected to incubation even for a few hours, the germ will have commenced to develop; if this germ dies, decomposition soon follows. It is obvious, therefore, that fertilised eggs should be removed from the nest as soon as possible after laying. Eggs should always be collected from the nests twice daily; this is specially important when the eggs are to be preserved.

Preserved eggs should be stored in a cool place. A cellar, if well ventilated, is suitable. The most satisfactory results are secured with a temperature between 33 and 45 degrees Fahrenheit. A high atmospheric temperature will have a detrimental effect upon the eggs in a very short time.

In the case of waterglass or limewater solution, the liquid must cover the top row of eggs by at least two inches. The vessels containing the eggs should be kept covered.

It is advisable to test the eggs when they are taken out of the preservative, and any egg, the contents of which are "black" or "spotted" should be discarded. An ordinary egg-testing lamp is quite suitable for this purpose. A simple method is to take a piece of black cardboard 7 to 8 inches square, and cut a hole in the centre, the shape of an egg, but slightly smaller. By placing the egg to the aperture and holding the card between the eye and a strong light, the contents may be seen and examined. Testing is best conducted in a dark room.

Vats, barrels, crocks, or galvanised pails may be used as vessels for storing the eggs. The receptacle used must be perfectly clean and quite free from taint of any kind.

TRAINING FACTORY GIRLS IN DOMESTIC SCIENCE.

The teaching of cookery, laundry work, sewing, and the proper care of the home to factory girls is a question of very great importance, and presents, perhaps, the most interesting problem in the work of domestic economy teachers in manufacturing districts, and consequently a short account of experience gained in such teaching in the towns of Banbridge and Lurgan may be of some value. Roughly speaking the factories in Banbridge and Lurgan employ each from 50 to 300 girls, most of whom are much in need of instruction in housewifery. In Banbridge there are four weaving factories, one spinning mill, and several stitching factories, while Lurgan contains twenty to twenty-five weaving and stitching factories. Thus in these two towns alone there are at least 4,000 women and girls most of whom have yet to be taught the care of a home—a fact which shows the magnitude of the work to be done.

A beginning in domestic training for factory workers has been made in Banbridge through the kind co-operation of the factory owners, all of whom take a thoroughly practical interest in the welfare of their employees. The new regulations for the administration of the Science and Art Grant require that students, upon whom grants are paid, shall have a sound preliminary education or shall pass through a preparatory course of English, Elementary Mathematics, and Science or Drawing. No grant from this source could be earned in domestic science classes composed of factory operatives, for they have not the necessary preliminary education—nor will they attend a preparatory course. The cost of conducting such classes would therefore fall upon the funds of the Committee made up of the Department's Contribution and the Local Contributions from the rates. These funds, however, are already fully employed. To meet the difficulty the factory owners at Banbridge have come forward and have undertaken to pay the entire expense of conducting these classes, including the cost of instruction, in return for the privilege of being allowed to nominate a limited number of girls to receive instruction. The classes are held on one evening per week, the cost of instruction being £8 and the other expenses slight. Three

weaving factory owners and one mill owner nominate twelve girls each, so that in all forty-eight girls receive instruction during the session. The organisation provides for twelve lessons to each student. Twenty-four students received instruction before Christmas and twenty-four others have been in attendance in 1908. Owing to limited accommodation twelve only can practice at the same time, and it has been necessary to give twelve short demonstration lessons of three-quarters of an hour for the whole class, followed by one and a-quarter hours practice for the half class. Each girl thus receives twelve demonstration and six practice lessons.

In drawing up a syllabus of work, cookery alone could be attempted in the limited time. The dishes chosen were
Teaching of Cookery. of necessity very plain, consisting only of those which could be cooked on an open fire. In addition, care was taken to give demonstrations in cooking foods that could be prepared and at least partly cooked at night for the next day's dinner. This is an important matter where people begin work in the factories at six, or six thirty a.m., and continue until six, or seven p.m. with only two intervals of one hour each for meals. It is, indeed, not surprising that, as things are at present, many factory girls eat little but buns and tea, and that some die prematurely, largely owing to unsuitable food.

By pointing out the necessity of a little thoughtful system and management and a more wholesome dietary, it is hoped to do much to lessen the unsatisfactory home conditions in our midst. Many of the families of factory workers who are living in apparent poverty have between £4 and £5 per week coming in, and sometimes even more—when work is really good—yet through ignorance of the simple rudiments of housewifery they often live in a state of debt and misery.

At the Banbridge School last term the average attendance of twenty-four pupils at demonstrations was 22·66, and the average attendance of twelve pupils at practice classes was 10·91—a very satisfactory record for evening classes. During the demonstration lessons instruction was given not only in the preparation and cooking of two simple dishes—the recipes and prices of which were always written clearly on the black-board—but also in their food value. These

The System of demonstration lessons were made as simple as
Teaching Adopted. possible, so as to avoid the use of words with which the girls were not familiar. If the use

of any new word was necessary it was written on the board and spelled over as often as it occurred until the girls had thoroughly learnt

it. Questions were asked right through the demonstrations as points occurred with which the girls should have become familiar through the previous lessons. The girls liked this, and it added to the interest of the work by giving them a share in the demonstration lessons. At the same time it afforded the teacher an opportunity of seeing whether they really understood what was being taught. After each demonstration a concise and simple blackboard summary was given consisting of an account either of the method used, or of the rules laid down for preparing the food cooked. The matter for these summaries was elicited from the pupils themselves by questioning. This has been found an excellent plan for impressing the lessons on the minds of those who could not write quickly enough to take down the notes. The attention paid during the demonstration lessons was most encouraging, and as a consequence, when the pupils came to practise for themselves they remembered their work so well that ample time was found during the practice classes for details and additional instruction which it had not been considered possible to give in the limited time available.

The system of a short demonstration lesson followed by a practice class has been adopted because of the fact that it really amounts to two lessons concerning the same dish. In one case, where this method was not adopted the practice classes were not satisfactory and the girls did not carry away a clear idea of the work done. At intervals during the work the girls were asked what dishes they had prepared at home, and it was found that at least two-thirds of the class practised regularly at home what they had been taught in the school.

The girls took very kindly to method and order. They have these in their every-day employment and would be quick

Some Good Results to take advantage of a want of them in the
of the Work. class-room. The maintenance of discipline,
however, has involved no difficulty, owing to

the interest the girls take in the work. Nor has any effort been required to secure personal cleanliness and tidiness. The aprons worn would have been a lesson to many persons who are supposed to be in a position to set these girls an example. Of course there are exceptions to every rule. But the example of the tidy girls was sufficient to remedy this without the teacher having to intervene.

In the management of the girls it is a great assistance if the teacher is liked personally and if she takes an interest in the girls' every-day pursuits. With this purpose in view on the first night one or two girls from each factory were selected carefully and were asked to find out and report about any pupils who were not in attendance at the

class. In case of sickness a message is sent to the absentees, and on their return inquiries are made as to their health, &c. The pupils are also encouraged to ask the teacher questions, and to talk freely about their home cookery. To these little attentions is attributed the good attendance recorded already more than to the fact that if a girl misses more than two nights without sending an explanation the fact is reported to "her manager," in order that her place may be filled by someone more deserving. The girls have all been informed of this rule but it is gratifying to be able to say that it has been unnecessary to report anyone up to the present.

A second class of twenty-four has been meeting since the new year, and the girls have settled to work in a very satisfactory way. There are, of course, factory girls in many of the general classes, but the work done with them is not so satisfactory as that accomplished in the real "factory girls' class."

The above sketch will explain the beginning which has been made, and although what has been done is a very small part of what has to be done, it holds out a promise which is distinctly encouraging—both because of the practical co-operation of the employers, and also because of the interest taken by the workers. The syllabus of the course is set out below. Invalid cookery is taught as the syllabus progresses—when opportunity affords; unfortunately time does not allow of special lessons in this branch of cookery.

SYLLABUS FOR FIRST AND SECOND TERMS.

Potato soup; beef dumpling; syrup pudding; clarified fat; soda bread; scullery work.

Stewed beef and vegetables; corn flour shape.

Brown bread; oat cakes; potato bread.

Irish stew; slim cakes.

Roly poly; sea pie.

Shepherd's pie; fish cakes.

Fried steak or chop; onion gravy; potato chips.

Bacon and eggs; gravy toast; plain toast; tea.

Lentil soup; apple dumpling.

Tea buns; dropped scones.

Lessons on roasting in a pot, gravy, and boiling potatoes.

Christmas dishes.

Exhibition of work.

MARY IRWIN.

IRISH PRODUCE AT THE GROCERS' EXHIBITION, GLASGOW, 1908.

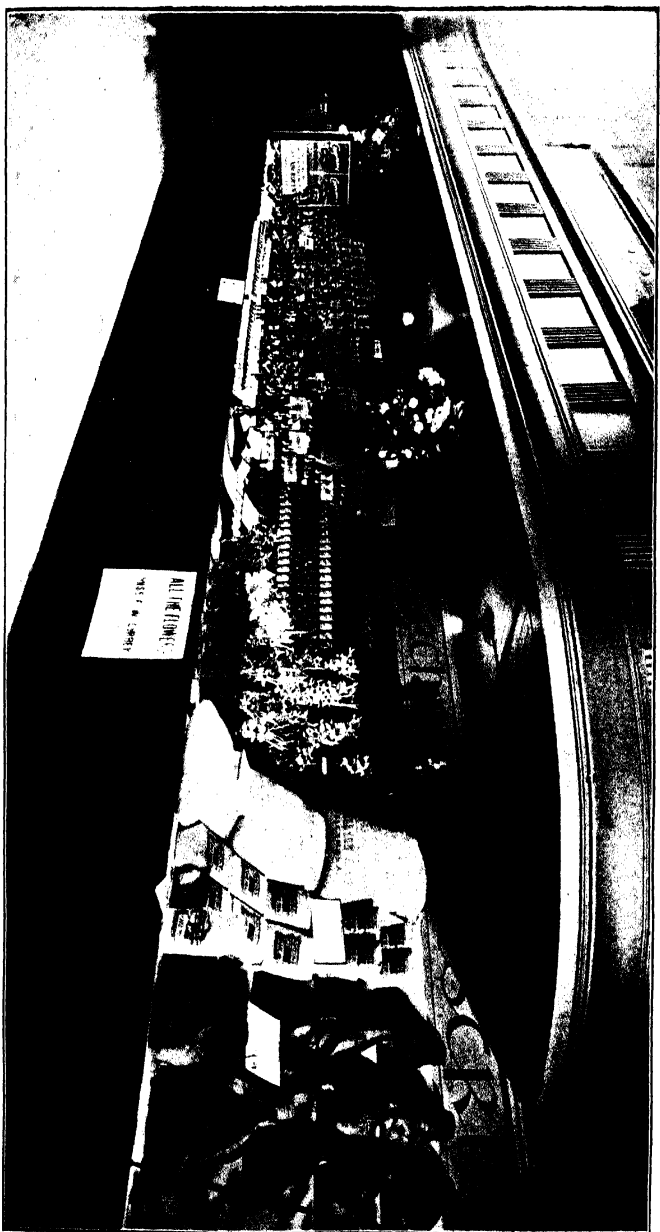


Fig. 1.—A View of the Department's Stand.

(Display of Bottled Fruits, Fruit Wines, Ciders, Decorative Flowers, etc.).

IRISH PRODUCE AT THE GROCERS' EXHIBITION, GLASGOW, 1908.

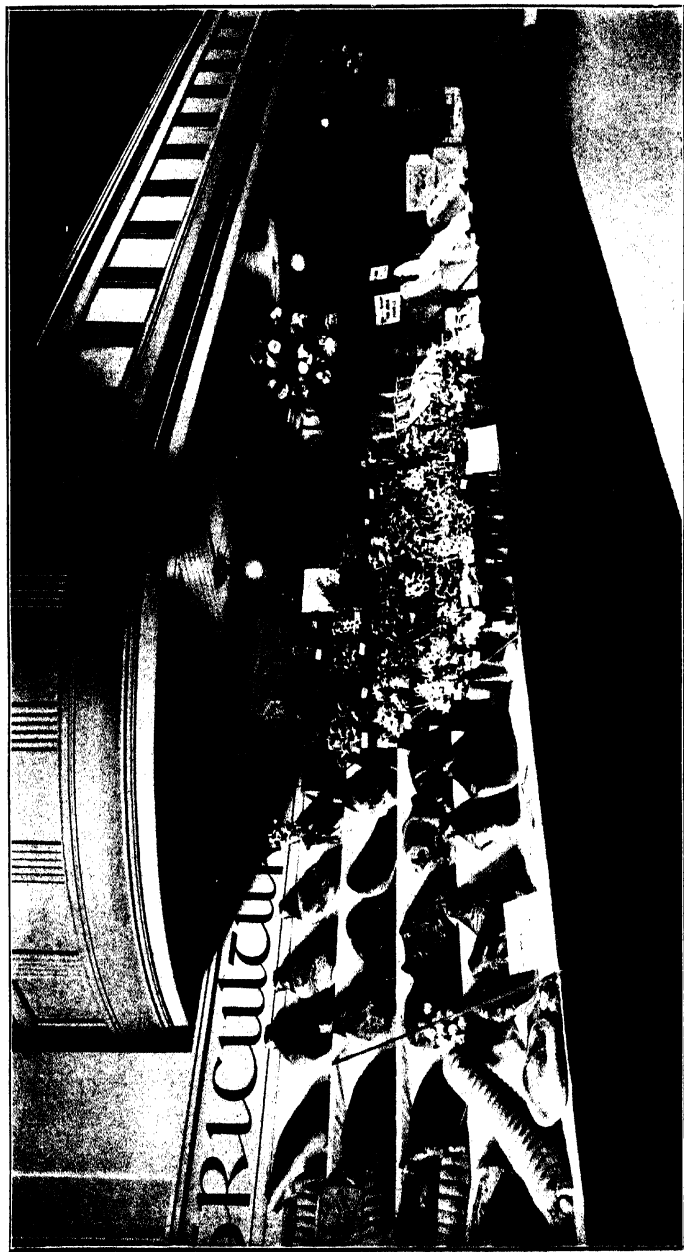


Fig. 2.—Another View of the Department's Stand.

DISPLAY OF IRISH PRODUCE AT THE GROCERS' AND BAKERS' EXHIBITION, GLASGOW, APRIL, 1908.

In the October number of the Department's *Journal* (Vol. VIII., No. 1) a brief account appeared of the scheme which has been put in operation by the Department, with the object of making the merits of Irish agricultural produce more widely known in cross-channel markets. The inception of the scheme was in some measure suggested by the series of Grocers' Exhibitions held annually in the large industrial centres of England and Scotland. At these exhibitions, which are largely attended by the leading provincial provision dealers as well as by the general public, there are excellent displays given of such important articles in the Irish agricultural export trade as Eggs, Butter, Bacon, &c. ; hence the

Objects of Irish Produce Displays.

policy suggested itself of utilising the opportunity which such exhibitions afford of advertising Ireland to British firms as a trustworthy source of supply for high quality produce, and of assisting Irish producers to extend their trade in these districts. During the past season displays of Irish produced articles were arranged for and carried out at Manchester, Newcastle, Swansea, Leeds, and London. In addition, at the Christmas fat stock shows in Norwich, Birmingham, York, Edinburgh, London, and Leeds, there were exhibits of Irish dead fat poultry. This method of developing a more extended market for Irish produce has been attended with marked success ; an account of the display of Irish produce at the Grocers' and Bakers' Exhibition, which was opened in Glasgow on 1st April, and continued for the eight following days, will therefore be of interest to Irish producers.

Glasgow is one of the largest marketing centres Irish farmers have for the disposal of all kinds of agricultural produce. A considerable trade is carried on between Glasgow provision merchants and Irish exporters in every part of the country ; hence the desirability was manifest of strengthening and, if possible, of extending the commercial connection which Irish producers possess at this centre.

The Exhibition at Glasgow, which was held in one of the largest city halls—the St. Andrew's Hall—was opened by the Lord Provost of the city, supported by a number of the most important and influential members of civic and commercial life.

For the accommodation of the different kinds of produce sent forward by Irish firms in response to the Department's

Irish Produce invitation, ample space was secured by the
displayed in the acquisition of the Berkeley Hall—an annexe
Berkeley Hall. to the main building—where the articles were
 attractively displayed. As on former occasions

the invitation to exhibit received a good response from the various firms of Irish producers represented. In respect either of bulk or commercial value, butter, bacon, and eggs, formed by far the largest portion of the produce on view, but there was a wide range of articles, including such diverse yet essential commodities as Bottled Fruits, Jams, Cider, Fruit Drinks, Rolled Oats, Soap, Decorative Flowers, as well as Irish grown tobacco. The attendance at the Exhibition was continuously good. The Irish produce section attracted much notice, and, as the leading city newspapers in their reports of the opening proceedings drew special attention to the excellent display promoted by the Department of Agriculture for Ireland, few visitors failed to examine the articles sent over from this country.

The stand devoted to the display of dairy produce occupied a prominent position in the centre of the Hall.

The Dairy Produce Sixteen producing firms exhibited butter, eight
Stand. cream and two cheese. The following firms
 were represented by exhibits :—

BUTTER.

Ballyrashane Co-operative Agricultural and Dairy Society, Limited, Ballyrashane, Coleraine; Belleek Co-operative Dairy Society, Belleek, Co. Fermanagh; Brosna Co-operative Dairy Society, Brosna, Co. Kerry; Centenary Co-operative Creamery Company, Limited, Ballyduff, Thurles; Cork Co-operative Creameries Federation, Limited, 6 and 7, Union-quay, Cork; Cork and Kerry Creamery, 34, Dunbar-street, Cork; Doons Co-operative Agricultural and Dairy Society, Limited, Doons, Cookstown; Drumquin Creamery, Drumquin, Co. Tyrone; Fivemile-town and Brookboro' Co-operative Agricultural Dairy Society, Limited, Fivemiletown, Co. Tyrone; Irish Co-operative Agency Society, Limited, Limerick; Kantoher Co-operative Agricultural and Dairy Society, Limited, Killeedy, Ballagh, Charleville, Co. Limerick; Kille-shandra Co-operative Agricultural and Dairy Society, Limited, Kille-shandra, Co. Cavan; Newmarket Dairy Company, Limited, Mitchels-town, Co. Cork; Newmarket Dairy Company, Limited, Newmarket



Fig. 3.—A View of the Dairy Produce Exhibit.

IRISH PRODUCE AT THE GROCERS' EXHIBITION, GLASGOW, 1908.



Fig. 4.—A View of the Bacon and Ham Exhibit.

Co. Cork ; Pomeroy Co-operative Dairy Society, Limited, Pomeroy, Co. Tyrone ; Rathkenny Joint Co-operative Dairy Society, Limited, Carncoagh, Co. Antrim.

CREAM.

Ballyrashane Co-operative Agricultural and Dairy Society, Limited, Ballyrashane, Coleraine ; Belleek Co-operative Dairy Society, Limited, Belleek, Co. Fermanagh ; Cork Co-operative Creameries Federation, Limited, 6 and 7, Union-quay, Cork ; Cork and Kerry Creamery Company, 34, Dunbar-street, Cork ; Drumquin Creamery, Drumquin, Co. Tyrone ; Kantoher Co-operative Agricultural and Dairy Society Limited, Killeedy, Ballagh, Charleville, Limerick ; Kilbarron Co-operative Dairy Society, Limited, Cashelard, Ballyshannon ; Newmarket Dairy Company, Limited, Newmarket, Co. Cork.

CHEESE.

Cork and Kerry Creamery Company, 34, Dunbar-street, Cork ; D. C. Daly, Creamery, Kanturk, Co. Cork.

Butter was shown in the following forms :—112 lb. kiels, 56 lb. kegs, 56 lb. pyramid boxes, 56 1-lb. roll boxes, 28 1-lb. roll boxes, 24 1-lb. roll boxes, 24 1-lb. prints, 24 $\frac{1}{2}$ -lb. print box, and 24 $\frac{1}{2}$ -lb. rolls. The exhibits of cream included 5 gallon returnable tins, 2 gallon non-returnable tins, 1 gallon non-returnable tins, 1 pint earthenware jars, $\frac{1}{2}$ -lb. tin jars, as well as $\frac{1}{2}$ -pint and $\frac{1}{4}$ -pint hygienic cream mugs. The cheese manufactured by the Cork and Kerry Creamery Society and by Messrs. D. C. Daly and Co., Kanturk, was very favourably commented on both for texture and flavour. The general quality of Irish Creamery butter was described by Glasgow merchants as exceedingly good, but the great drawback to its more extensive sale, viz., the lack of continuity in supply, was frequently emphasised. It is this lack which handicaps Irish butter so much when in competition with that shipped all the year round from Denmark. Want of uniformity in quality was also mentioned as a source of injury to the trade in Irish butter, and shortage in weight was also made a cause of complaint.

The exhibition of Irish cured bacon and hams was very good, and was contributed to by the following firms :—Messrs. Biggers, Ltd., Londonderry ; Henry Denny and Sons, Ltd., Limerick ; Lunham Bros., Ltd., Cork ; Messrs. McCammon and Sprott, Portadown ; D. McCartney and Son, Ballymena ; Mark, Roulston and McLaughlin, Londonderry ; J. Matterson and Sons, Limerick ; Morton and Simpson, Ltd., Ballymena ; James O'Mara and Sons, Ltd., Limerick ; W. J. Shaw and Sons, Limerick ; J. and T. Sinclair and Co., Ltd., Belfast ; J. M.

Slattery, Tralee; and the Ulster Curing Co., Ltd., Belfast. Two of the firms, Messrs. Matterson and Messrs. W. J. Shaw and Son, had also on view an attractive assortment of canned and potted meats.

A feature of the bacon exhibit was its special suitability for the requirements of the Glasgow market. It is most

The Bacon Exhibit. important to the Irish curing trade that Irish bacon should be bought by the cross-Channel retailers as Irish and sold as such, and this was not overlooked by the exhibiting firms; in every case the source of origin and quality was so displayed as to be easily apparent to the consumer. Among other bye-products of the pork-curing trade, lard, put up in convenient form, received considerable prominence; it was displayed in tastefully printed cartons, in grease-proof paper, in boxes, in sausage skins, in bladders, and in large sized pails.

In the exhibit of eggs, thirteen exporting firms, from counties so widely apart as Cork and Donegal, were represented: these were G. and H. Bell, Hillsborough, County Down; Burncourt Co-operative D. and A. Society, Ltd., Clogheen, County Tipperary; Charles Doherty, Main-street, Donegal; Robert Doyle, Markethill, County Armagh; Gracey Brothers, Townsend-street, Belfast; Charles James Hill, Limited, Waterford; Irish Producers, Limited, Capel-street, Dublin; Arthur Holland, Dobbin-street, Armagh; Limavady Co-operative Poultry Society, Limited, County Londonderry; F. Moore and Co., Cappoquin, County Waterford; Newmarket Dairy Company, Ltd., County Cork; Thomas Robinson, Sons and Co., Cork; A. Steedman, Coleraine. The eggs shown were well graded and staged; the bulk of them were packed in straw, but there were some in wood-wool, and a few in a mixture of wood-wool and straw

The views of several of the chief egg merchants in Glasgow with reference to the features of the Irish egg trade which require most attention, may be summarized under the following heads:—

Features of the Irish Egg Trade with Glasgow.

(1) The greatest enemies to the Irish egg trade are some of the Irish egg merchants themselves. Up to a certain stage of the season Irish eggs are in good demand and the quality unimpeachable. But when supplies begin to fall off and prices to rise, the unwise policy of holding over eggs is resorted to; as a result the trader, who has hitherto been supplying Irish eggs to his customers, gets complaints, and whether he likes it or not is forced to give up his connection with the Irish trade.

IRISH PRODUCE AT THE GROCERS' EXHIBITION, GLASGOW, 1908.



Fig. 5.—A Corner of the Egg Stand.

IRISH PRODUCE AT THE GROCERS' EXHIBITION, GLASGOW, 1908.

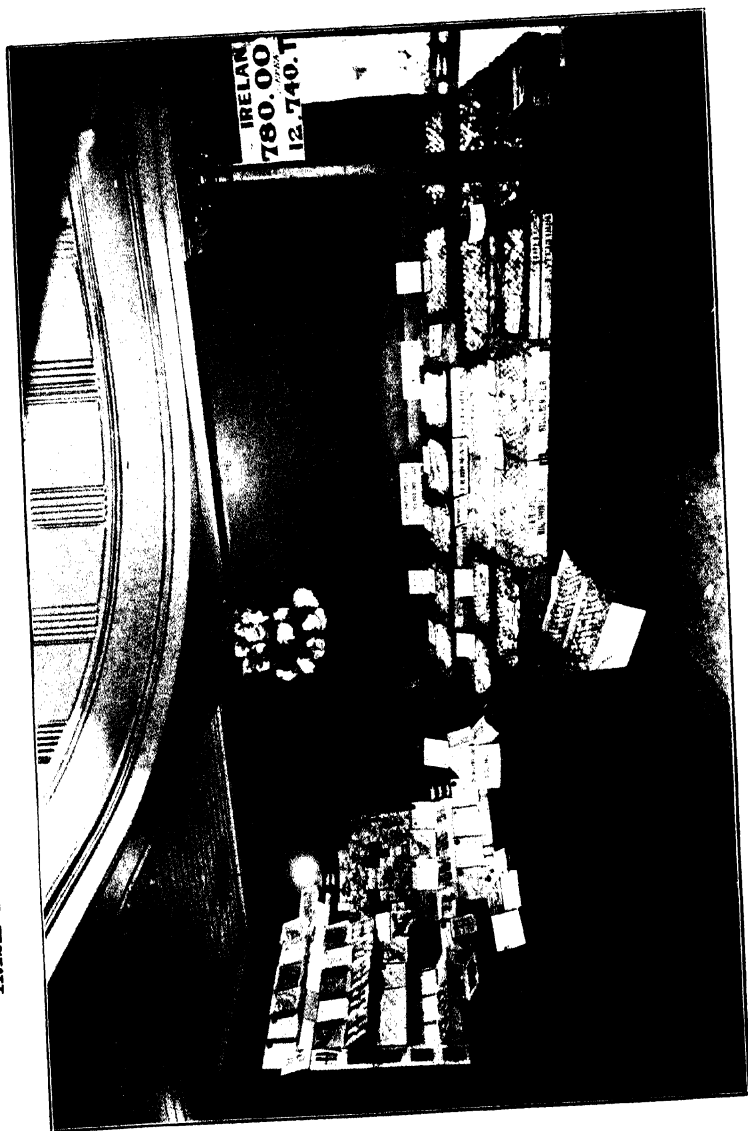


Fig. 6.—Another Corner of the Egg Stand.

(2.) Much, it is admitted, has been done, in recent years, to improve the packing of Irish eggs, but there are yet on this side a great many shippers who, through carelessness in this respect, are doing harm to their own trade and to the reputation of Irish eggs generally. Glasgow merchants, with much force, point out that onions which, at most, are only worth 3s. 6d. per box in the Glasgow market, are sent all the way from Spain, neatly and carefully packed in rows, and yet Irish egg shippers are so indifferent that they refuse to take the same care in packing a box of eggs worth from thirty to forty times as much.

(3.) The demand in Glasgow is for a large-sized egg. Irish shippers need to keep this in mind in connection with this particular market. In general terms the trade demands that eggs for marketing shall be fresh, clean, carefully graded, and neatly packed in regular rows, and that only sweet, dry, clean packing material shall be used, and the sooner Irish egg-shippers recognise the importance of these essentials for the development of the Irish egg trade and carry them out, the sooner will a more profitable position in the Glasgow egg market be assured to Irish poultry keepers.

Besides the above important sections, an interesting display of Irish grown tobacco, in various stages of manufacture, **Irish Grown Tobacco.** exhibited by Colonel Everard, of Randlestown, County Meath, came in for much notice.

Messrs. Chapman's, Limited, Portadown, made a fine display of canned apples, as well as bottled plums, **Other Exhibits.** raspberries, black currants, greengages, and also jams of various kinds. There was an exhibit of cider in bottle by the Armagh Cider Company, Portadown, a firm which utilises nothing but Irish-grown apples in their factory. Messrs. Fitzgerald and Co., Abbey-street, Dublin, exhibited a quantity of wines made from home-grown fruit. The firm, it is interesting to note, uses over 100 tons of rhubarb in the manufacture of rhubarb wines every year, and this is mostly all grown in County Dublin. Messrs. White, Tomkins and Courage, Belfast, had a special tasting stand for their "wafer oatmeal," an article prepared entirely from Irish-grown oats at the firm's mills in Belfast and Tandragee. Irish bulb and flower growers were represented by two stands, one from Sir Jocelyn Goore-Booth, Lisadell, County Sligo, the other from Miss Currey, the Warren Gardens, Lismore, County Waterford.

Irish soap manufacture was represented by the stands of Messrs. John Barrington and Sons, Ltd., Dublin, and Messrs. David Brown and Sons, Donaghmore, Co. Tyrone.

Messrs. King and Co., Ltd., Belfast, showed a collection of dried vegetables, largely used in the preparation of soups; Messrs. W. and C. McDonnell, Ltd., Limerick, had an exhibit of the margarine manufactured by this firm.

There can be no question that the exhibit of Irish produce at Glasgow made an excellent impression, and if advantage be taken of the new connection secured, the same good results will follow as at other centres. Proof that this has been the case is evidenced by the fact that a number of the exhibiting firms have written the Department expressing their extreme satisfaction; in the case of some firms the stimulus so given has warranted the appointment of agents in parts of Scotland where Irish produce had not been before offered for sale. The amount of success, however, which this method of developing a more extended and profitable cross-Channel trade can be expected to achieve, must ultimately depend on the manner in which the lead given by the Department's efforts is followed up by Irish traders themselves. There have been disheartening instances where, though excellent openings for the disposal of Irish produce were obtained, the opportunity was lost through disregard of business principles. The most that such exhibitions of Irish produce can be expected to do is to draw the attention of cross-Channel buyers and consumers generally to the nature and quality of Irish articles, and to demonstrate that Irish produce may be obtained possessing a certain standard of excellence. Thus far these exhibitions serve to find an opening into a new market, or extend an older one for the Irish exporter; the latter, however, if Irish trade is to benefit, must take advantage of the new connection and spare no effort in following up the steps thus taken to secure a wider market. By prompt reply to trade queries, by judicious circularising, and by the observance of those business methods which other competing countries follow so assiduously, Irish exporters have the opportunity to benefit much from the pioneer commercial work effected by these displays of Irish produce at cross-Channel centres.

IRISH PRODUCE AT THE GROCERS' EXHIBITION, GLASGOW, 1908.

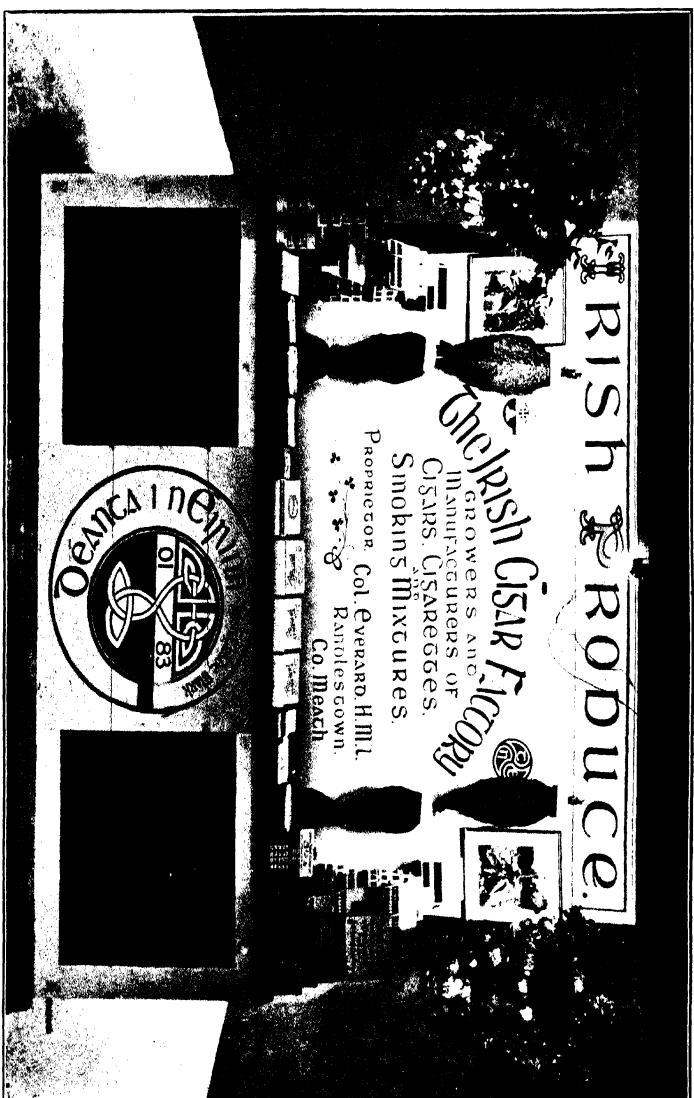


Fig. 7.—The Tobacco Exhibit.

OFFICIAL DOCUMENTS.

I.—AGRICULTURE,

Form A. 176 (a).

DEPARTMENT OF AGRICULTURE AND TECHNICAL INSTRUCTION FOR IRELAND.

AGRICULTURAL EDUCATION FOR YOUNG MEN.

Session 1908-9.

FARM APPRENTICESHIPS.

AGRICULTURAL STATION, ATHENRY, COUNTY GALWAY.

Young men who intend to become farmers and who desire to acquire a practical knowledge of the several branches of farming are admitted to the Station as apprentices.

The farming operations are conducted by an experienced agriculturist, under whose direction the apprentices are required to take part in all the work of the fields and of the farmyard. In the class-room attention is given, in the evenings and at other times when outdoor work is not pressing, to English, Arithmetic (including Surveying), Book-keeping and Technical Agriculture. This instruction is not intended as a preparation for any examination. It is of such a character as to continue the general education of the apprentices and be useful to them in their future career as farmers.

Applicants for apprenticeships must be not less than seventeen years of age on the 1st October, 1908, and each must give an undertaking that it is his intention to become a farmer in Ireland. He must also provide, in his application form, evidence of a sure prospect of obtaining a farm of his own, or *bona fide* occupation on a farm. Preference will be given to applicants from the province of Connaught. It will also be a recommendation if the applicant has attended a course of instruction held under the Department's Scheme of Winter Agricultural Classes, or if he produces a certificate from an Itinerant Instructor in Agriculture that he has taken advantage of the Instructor's lectures and demonstrations and has shown a desire to improve his knowledge of tillage farming.

The session will commence on the 7th October, 1908, and will terminate on the 3rd September, 1909.

Owing to the limited extent of the existing residential accommodation only a small number of apprentices can be admitted for the 1908-9 session. Until new premises have been provided no fees will be charged.

Admission as an apprentice is conditional on passing the entrance examination and producing certificates of good health and character. Applicants who have been pupils at Winter Agricultural Classes will be exempted from the entrance examination, provided their attendance and progress at the Agricultural Classes have been satisfactory.

Entrance Examination.

The following subjects are included :—

English—Dictation, Grammar, and Composition.

Arithmetic—Simple calculations requiring a knowledge of weights and measures.

The examination will be of such a nature as should present little difficulty to a young man who has passed the fifth standard at a National school.

Particulars as to the date of this examination and the place where it will be held will be notified to each applicant.

No expenses will be allowed to candidates in connection with their attendance at this examination.

No person will be admitted as an apprentice whose general education is, in the opinion of the Department, too backward to enable him to profit by the class-room instruction.

Outfit.

Apprentices will be required to provide themselves with a proper outfit, particulars of which will be supplied to the successful candidates.

A sum of £1 must be deposited with the Superintendent on entrance to cover the cost of repairs to clothes, the purchase of books, stationery, etc. The unexpended balance, if any, of this deposit will be refunded at the close of the session.

Applications for Admission.

Applications for admission must be made on the prescribed form to be obtained from—

The Department of Agriculture and
Technical Instruction for Ireland,
Upper Merrion-street, Dublin.

The applications will be dealt with in the order of their receipt in the Department's offices. They should be forwarded as soon as possible after 1st March, and not later than 15th August, 1908.

Form A. 176 (b).

DEPARTMENT OF AGRICULTURE AND TECHNICAL
INSTRUCTION FOR IRELAND.

AGRICULTURAL EDUCATION FOR YOUNG MEN,

Session 1908-9.

FARM APPRENTICESHIPS.

AGRICULTURAL STATION, BALLYHAISE, CO. CAVAN.

Young men who intend to follow the farming profession and who desire to acquire a practical knowledge of its several branches are admitted to the Station as apprentices.

The farm is managed by an experienced agriculturist, under whose direction the apprentices are required to take part in all the work of the fields and of the farmyard, whether in connection with seasonable operations or permanent improvement. Instruction in Veterinary Hygiene, in Horticulture and in Woodwork is provided. In the class-room attention is given, in the evenings and at other times when outdoor work is not pressing, to English, Arithmetic (including Surveying), Book-keeping and Technical Agriculture. This instruction is not intended as a preparation for any examination. It is of such a character as to continue the general education of the apprentices and be useful to them in their future career as farmers.

Applicants for apprenticeships must be not less than seventeen years of age on the 1st October, 1908, and each must give an undertaking that it is his intention to become a farmer in Ireland. He must also provide, in his application form, evidence of a sure prospect of obtaining a farm of his own, or *bona fide* occupation on a farm. Preference will be given to applicants from the province of Ulster, especially to those who have attended a course of instruction under the Department's Scheme of Winter Agricultural Classes. It will also be a recommendation if the applicant produces a certificate from the Itinerant Instructor in Agriculture for the County in which he resides that he has taken advantage of the Instructor's lectures and demonstrations and has shown a desire to improve his knowledge of tillage farming.

The apprentices are required to reside in Ballyhaise House, attached to the Station, where they are in charge of a house master and matron.

The Session will commence on the 7th October, 1908, and close on the 3rd September, 1909.

Admission as an apprentice is conditional on passing the entrance examination, producing certificates of good health and character, and paying the required fee according to the scale indicated overleaf.

Applicants who have been pupils at Winter Agricultural Classes will be exempted from the entrance examination, provided their attendance and progress at the Agricultural Classes have been satisfactory.

ENTRANCE EXAMINATION.

Particulars as to the date of this examination and the place at which it will be held will be notified to each applicant.

The following subjects are included in the examination :—

Arithmetic—Simple calculations requiring a knowledge of weights and measures.

English—Dictation, Grammar and Composition.

The examination will be of such a nature as should present little difficulty to a young man who has passed the fifth standard at a National school.

No candidate will be admitted as an apprentice whose general education is, in the opinion of the Department, insufficient to enable him to profit by the class-room instruction.

No expenses will be allowed to candidates in connection with their attendance at this examination.

FEES.

1. For apprentices whose parents or guardians derive their means of living mainly from farming in Ireland the fees are proportional to the aggregate tenement valuation of their holdings, as follows :—

Where the aggregate valuation does	Per Session.
not exceed £20,	£3
Exceeds £20 but does not exceed £40,	£6
Exceeds £40 but does not exceed £100,	£10
Exceeds £100,	£15
2. For apprentices not included in the foregoing classes,	£20

Apprentices will be notified of the fees payable by them. Fees must be paid to the Superintendent on entrance, and in addition a sum of £1 must be deposited at the same time to cover the cost of repairs to clothes, the purchase of books, stationery, &c. The unexpended balance, if any, of this deposit will be refunded at the close of the session.

FREE PLACES.

A small number of free places provided under the terms of the Anne Hall Bequest are available for applicants from the Counties of Fermanagh and Londonderry. Applications for these places must be addressed in the first instance to the Agricultural Superintendent, Royal Dublin Society, Leinster House, Dublin.

OUTFIT.

Apprentices will be required to provide themselves with a proper outfit, particulars of which will be supplied to the successful candidates

APPLICATIONS FOR ADMISSION.

Application for admission must be made on the prescribed form to be obtained from—

The Department of Agriculture and
Technical Instruction for Ireland,
Upper Merrion-street, Dublin.

The applications will be dealt with in the order of their receipt in the Department's Offices. They should be forwarded as soon as possible after 1st March, and not later than 15th August, 1908.

DEPARTMENT OF AGRICULTURE AND TECHNICAL
INSTRUCTION FOR IRELAND.

AGRICULTURAL EDUCATION FOR YOUNG MEN.

Session 1908-9.

FARM APPRENTICESHIPS.

AGRICULTURAL STATION, CLONAKILTY, COUNTY CORK.

Young men who intend to follow the farming profession and who desire to acquire a practical knowledge of its several branches are admitted to the Station as apprentices.

The farm is managed by an experienced agriculturist, under whose direction the apprentices are required to take part in all the work of the fields and of the farmyard, whether in connection with seasonable operations or permanent improvements. In the class-room attention is given, in the evenings and at other times when outdoor work is not pressing, to English, Arithmetic (including Surveying), Book-keeping and Technical Agriculture. This instruction is not intended as a preparation for any examination. It is of such a character as to continue the general education of the apprentices, and be useful to them in their future career as farmers.

Applicants for apprenticeships must be not less than seventeen years of age on the 1st October, 1908, and each must give an undertaking that it is his intention to become a farmer in Ireland. He must also provide, in his application form, evidence of a sure prospect of obtaining a farm of his own or *bona fide* occupation on a farm. Preference will be given to applicants from the province of Munster, especially to those who have attended a course of instruction under the Department's Scheme of Winter Agricultural Classes. It will also be a recommendation if the applicant produces a certificate from the Itinerant Instructor in Agriculture for the County in which he resides that he has taken advantage of the Instructor's lectures and demonstrations and has shown a desire to improve his knowledge of tillage farming.

The apprentices are required to reside in the buildings attached to the station where they are in the charge of a house master and matron.

The Session will commence on the 7th October, 1908, and will terminate on the 3rd September, 1909.

Admission as an apprentice is conditional on passing the entrance examination, producing certificates of good health and character, and paying the required fee according to the scale indicated overleaf.

Applicants who have been pupils at Winter Agricultural Classes will be exempted from the entrance examination provided their attendance and progress at the agricultural classes have been satisfactory.

ENTRANCE EXAMINATION.

Particulars as to the date of this examination and the place at which it will be held will be notified to each applicant.

The following subjects are included in the examination :—

Arithmetic.—Simple calculations requiring a knowledge of weights and measures.

English.—Dictation, Grammar and Composition.

The examination will be of such a nature as should present little difficulty to a young man who has passed the fifth standard at a National school.

No candidate will be admitted as an apprentice whose general education is, in the opinion of the Department, insufficient to enable him to profit by the class-room instruction.

No expenses will be allowed to candidates in connection with their attendance at this examination.

FEES.

1. For apprentices whose parents or guardians derive their means of living mainly from farming in Ireland the fees are proportional to the aggregate tenement valuation of their holdings, as follows :—

	Per Session.
Where the aggregate valuation does not exceed £20,	£3
Exceeds £20 but does not exceed £40,	£6
Exceeds £40 but does not exceed £100,	£10
Exceeds £100,	£15

2. For apprentices not included in the foregoing classes, £20

Apprentices will be notified of the fees payable by them. Fees must be paid to the Superintendent on entrance, and in addition a sum of £1 must be deposited at the same time to cover the cost of repairs to clothes, the purchase of books, stationery, &c. The unexpended balance, if any, of this deposit will be refunded at the close of the session.

OUTFIT.

Apprentices will be required to provide themselves with a proper outfit, particulars of which will be supplied to the successful candidates.

APPLICATIONS FOR ADMISSION.

Application for admission must be made on the prescribed form to be obtained from—

The Department of Agriculture and
Technical Instruction for Ireland,
Upper Merrion-street, Dublin.

The applications will be dealt with in the order of their receipt in the Department's Offices. They should be forwarded as soon as possible after 1st March, and not later than 15th August, 1908.

FORM A. 168 (a).

DEPARTMENT OF AGRICULTURE AND TECHNICAL
INSTRUCTION FOR IRELAND.

POULTRY FATTENING INDUSTRY.

APPRENTICESHIPS.

The Department have made arrangements for the training, as apprentices to the poultry-fattening industry, of a limited number of young men who desire to become qualified for the position of poultry fatteners at fattening stations in Ireland. Apprenticeship may extend over a period of twelve months or longer according to the efficiency of the apprentice.

The apprentices will be instructed in the preparation of suitable foods, the fattening, cramming, killing, plucking and dressing of poultry for market, and the management of poultry generally. They will be required to devote their whole time to such work, including the rearing of fowl, if found necessary.

Applicants for apprenticeships must be at least twenty years of age, unmarried, in good health and of strong constitution. Preference will be given to those who have had experience in poultry-keeping.

The apprenticeships will be awarded on the result of an examination which will be held in Dublin early in February, 1908. The examination will include written tests in English and Arithmetic. A high standard will not be expected in these subjects. Each candidate will also be examined orally as to his general suitability for an apprenticeship.

No expenses will be allowed to candidates in connection with their attendance at this examination.

Successful candidates will be called up for training as vacancies for them occur. They will receive wages at the rate of 16s. per week from the date of their commencing work, and will be required to find their own board and lodging. The engagement between apprentices and the Department may be determined at any time by one week's notice on either side.

The Department do not undertake to employ or to procure employment for apprentices on the conclusion of their training.

Applications for apprenticeships must be made on forms provided for the purpose, which can be obtained from

The Secretary,
Department of Agriculture and
Technical Instruction,
Upper Merrion-street, Dublin.

Latest date for receiving applications, 25th January, 1908.

Form A 135 (g).

DEPARTMENT OF AGRICULTURE AND TECHNICAL
INSTRUCTION FOR IRELAND.

SCHOOL OF RURAL DOMESTIC ECONOMY.

CONVENT OF MERCY, CLIFDEN, COUNTY GALWAY.

The School is open to female pupils over sixteen years of age, without restriction as to religious denomination.

The course of instruction is intended to qualify the pupils to perform efficiently the work of rural life, and includes—Dairying, Poultry-keeping, Gardening, Household Management, Cookery, Sewing, and Laundry-work.

The school year extends from the beginning of September to the beginning of August, and is divided into two sessions, which open, respectively, in September and in February.

Intending pupils are required to produce certificates of good health and character and to pass an examination in the elements of English and Arithmetic.

DAY PUPILS.

Applications for the admission of day pupils should be made to the Manager at the School. No fees are payable by day pupils.

RESIDENTIAL PUPILS.

Arrangements have been made for the reception of a small number of residential pupils.

The fee for tuition, board and lodging during one session is £3, and is payable to the Manager on entrance.

Pupils whose conduct and progress during their first session are satisfactory are eligible for admission to a second consecutive session on payment of the above mentioned fee.

Application for admission must be made on the prescribed form, which can be obtained from

The Department of Agriculture and Technical
Instruction for Ireland,
Upper Merrion-street, Dublin.

DEPARTMENT OF AGRICULTURE, AND

TECHNICAL INSTRUCTION FOR IRELAND,

No. 6453-08.

UPPER MERRION-STREET, DUBLIN.

SIR,

28th February, 1908.

I have to transmit herewith for your information a copy of an Order dealing with the diseases affecting Gooseberry and Currant bushes known as American Gooseberry Mildew and Black Currant Mite respectively, which has been issued by the Department under the Destructive Insects and Pests Acts, 1877 and 1907. You will observe from Clause 3 of this Order that it will be your duty as Secretary of the County—

Committee of Agriculture to notify the Department of such cases of the diseases mentioned as may be brought to your notice by persons residing in your county.

A reference to Clause 5, and to the second paragraph of Clause 6, of the scheme of Instruction in Horticulture and the Management of Bees will show that it is one of the duties of the instructors appointed under the scheme to report and deal with cases of American Gooseberry Mildew. With a view, however, to enabling instructors to take the most effective steps for the suppression of this disease, and also of Black Currant Mite, the Department are prepared formally to authorise these officers to do all things necessary for the due execution of the Order in their respective counties.

I have, accordingly, to express the hope that your Committee will see their way to concur in the Department's proposal in this matter, in which case the Itinerant Instructor in Horticulture in your county will be authorised by the Department to take action under the Order.

As it is of the utmost importance that the Order should be put into execution with the least possible delay, I have to request that, in the event of your being unable to lay this communication before your Committee within the next week, you will be so good as to consult the Chairman on the subject with a view to obtaining his consent to Mr. _____ being authorised to act as above until the concurrence of the Committee is given at their next meeting.

I am,

Sir,

Your obedient servant,

Secretary.

The Secretary,

Co.

Committee of Agriculture.

ORDER OF THE DEPARTMENT OF AGRICULTURE AND TECHNICAL INSTRUCTION FOR IRELAND.

Dated the 24th day of February, 1908.

AMERICAN GOOSEBERRY MILDEW AND BLACK CURRANT MITE (IRELAND) ORDER, 1908.

The Department of Agriculture and Technical Instruction for Ireland, by virtue of and in exercise of the powers vested in them under the Destructive Insects and Pests Acts, 1877 and 1907, do order, and it is hereby ordered, as follows :—

APPLICATION OF THE ORDER

1. This Order shall apply to the whole of Ireland.

DEFINITIONS.

2. In this Order :

"The Department" means the Department of Agriculture and Technical Instruction for Ireland.

"Disease" means the disease affecting gooseberry and currant bushes which is known as American Gooseberry Mildew and caused by *Sphaerotheca mors-uvæ*; and in the case of currants the disease known as Big Bud, caused by the Black Currant Mite, *Eriophyes Ribis*, otherwise *Phytoptus Ribis*.

"Diseased" means affected in any way with disease.

"Bush" includes a cutting, stock, seedling, or any part of a gooseberry or currant bush except the fruit.

"Landing" includes introduction through the post.

"Authorised" means authorised by the Department.

"Approved" means approved by the Department.

"Fruit" means gooseberries or currants.

NOTIFICATION OF DISEASE.

3. The occupier of any land or premises on which there is a bush diseased or suspected of being diseased shall forthwith notify the fact to the Department either directly or through the Secretary of the County Committee of Agriculture for the county in which the land or premises are situate, or through the County Instructor in Horticulture employed by that Committee. Where practicable, a specimen showing the disease or suspected disease shall accompany the notice. When the notification has been made to the Secretary or County Instructor as aforesaid, it shall be the duty of such Secretary or County Instructor to communicate the fact forthwith to the Department.

MEASURES FOR THE PREVENTION OF THE SPREAD OF DISEASE.

4. (1) On receiving in any manner notification of the existence or supposed existence of disease an Inspector of the Department or other authorised officer shall take such steps as may be necessary to determine whether the disease exists and the area covered by diseased bushes or by bushes to which the disease is likely to spread, and shall cause notice to be served on the occupier of any land or premises within that area requiring him to adopt such measures for the prevention of the spread of disease as are authorised by this Order.

(2) The notice under this Article shall require

(i.) The thorough spraying with an approved fungicide or the close pruning and collection and burning of all prunings, with subsequent spraying or the immediate destruction, by burning or other effective method, of all diseased bushes, including the fruit on such bushes, and of all packing material, packages, and boxes at any time used for the storing or conveying of such bushes and fruit.

(ii.) The thorough spraying as soon as possible with an approved fungicide of the site of any bush that has been destroyed or of any place in which diseased bushes or fruit have been temporarily deposited.

(iii.) The thorough spraying with an approved fungicide of all bushes on the area defined in the notice. Such spraying to be carried out at such time or times as an Inspector of the Department or other authorised person shall direct, and to his satisfaction.

(iv.) That no bush shall be removed or be permitted to be removed out of the area defined in the notice except with, and subject to the conditions, if any, of a licence signed by an Inspector of the Department or other authorised officer authorising such removal, but this restriction shall not apply to the fruit of a bush that is not diseased.

(3) Every such notice shall remain in force until altered or withdrawn by the Department.

IMPORTATION OF BUSHES.

5. It shall not be lawful to land in Ireland, after the 30th day of April, 1908, any bush brought from any place out of Ireland without a licence from the Department, and no such licence shall be given except for the importation of bushes to be used for the purpose of experiment or propagating new varieties. The licence must be produced if required by any officer of Customs, or other authorised person, when the bush is landed.

POWERS OF ENTRY.

6. An Inspector of the Department or other authorised person may enter on any land or premises—

(1) On which he has reason to suspect that disease exists or has recently existed, and examine any bush or fruit on such land or premises ;

(2) On which he has reason to believe that there are bushes landed in contravention of this Order, and examine any bush on such land or premises ;

(3) On which gooseberries are stored or are kept or are exposed for sale, and may direct that any diseased fruit shall be so disposed of as to eliminate all danger of the spread of disease therefrom. He may also require that the packages in which the diseased fruit has been found or conveyed shall be immediately disinfected or burnt.

PENALTIES.

7. (1) If any person—

(i.) fails to give the notice required to be given by him under this Order ;

(ii.) fails to comply with any direction contained in a notice served on him under this Order ;

(iii.) fails to destroy any bush, fruit, packing material, package or box when required by a notice served on him under this Order ;

(iv.) knowingly or without reasonable excuse sells or exposes for sale or has in his possession for the purpose of selling or exposing for sale any bush or the fruit of any gooseberry bush diseased or suspected of being diseased ;

(v.) wilfully obstructs or impedes an Inspector or other authorised person in the course of his duties under this Order ;

(vi.) fails to give information when required to do so as to the place of origin of any bush or fruit ;

(vii.) without the licence of the Department sells or exposes for sale or plants in Ireland any bush which has been landed in contravention of this Order, knowing the same to have been so landed ;

he shall be liable on conviction to a penalty not exceeding Ten Pounds for each offence.

(2.) If any person lands or attempts to land any bush in contravention of this Order the bush shall be liable to be forfeited in like manner as goods, the importation whereof is prohibited by the Acts relating to the Customs, are liable to be forfeited ; and the person so offending shall be liable according to those Acts to such penalties as are imposed on persons importing or attempting to import goods the importation of which is prohibited by those Acts.

EXECUTION OF THE ORDER.

8. For the purposes of this Order a notice shall be deemed to have been served on a person if it is delivered to him personally, or left for him at his last known place of abode or business, or sent through the post in a letter addressed to him there, and a notice or other document, purporting to be signed by an Inspector or other authorised person, shall be *prima facie* evidence that it was signed by him and duly authorised by the Department.

COMMENCEMENT.

9. This Order shall come into operation on the 25th day of February, 1908.

SHORT TITLE.

10. This Order may be cited as "The American Gooseberry Mildew and Black Currant Mite (Ireland) Order, 1908."

IN WITNESS WHEREOF the Department of Agriculture and Technical Instruction for Ireland have hereunto set their official Seal this Twenty-fourth day of February, 1908.

T. P. GILL,
Secretary.

[L.S.]

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION-STREET.

No. 4053/08.

DUBLIN, 18th February, 1908

SIR,

I have to inform you that the Department have had under consideration the question of supplying at regular intervals, to creameries which may desire to use them, "pure cultures" for use in the manufacture of butter, and to state that, should there be a sufficient demand for these

cultures by the proprietors and managers of creameries, the Department will be prepared to make permanent provision for the regular preparation and despatch of same. I have accordingly to request that you will be good enough to state, on the accompanying form, which should be signed by the proprietor or president and the manager, whether the creamery is prepared to pay the Department a fee of £2 2s. per annum for a supply of "pure culture" at intervals of about a fortnight.

I am, Sir,

Your obedient Servant,

T. P. GILL, *Secretary.*

To the Proprietor, President,
or Manager of the Creamery
named in the address.

Form A 94 (A).

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND.

EXHIBIT OF IRISH AGRICULTURAL PRODUCTS

At the Third Midland Counties Grocers', Bakers', and Allied Trades, Exhibition, to be held at the BINGLEY HALL, BIRMINGHAM, February 4th to February 13th, 1908. (The whole of the Lesser Hall has been taken for the Irish exhibits.) And at the Second Scottish Bakers', Grocers', Caterers', and Allied Trades' Exhibition, to be held at the ST. ANDREW'S HALL, GLASGOW, April 1st to April 9th, 1908. (The whole of the Berkeley Hall has been taken for the Irish Exhibits.)

With the object of facilitating Irish Producers in bringing their products under the notice of the trade and the public generally in Birmingham and the English Midlands, and in Scotland, the Department have arranged for Stands at the above-mentioned Exhibitions, on which specimens of Irish produce and manufactured goods will be exhibited. The Department are prepared to consider offers for exhibits of any of the products mentioned below, subject to the regulations specified. Applications for permission to exhibit must be made on the prescribed form, copies of which are transmitted herewith.

Inquiries in regard to the foregoing should be addressed to the Secretary, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion-street, Dublin; envelopes to be marked "Produce Exhibition."

REGULATIONS.

1. All articles offered for exhibition must have been produced or manufactured in Ireland. A declaration to this effect will be required from each Exhibitor. Preference will be given to exhibits of articles in the fostering of the production of which the Department are specially interested, but the Department reserve the right of refusing any application.

2. Entrance fees as specified below will be charged for accepted exhibits; in each case the entrance fee will cover an entire exhibit of any or all of the products in the class.

CLASS I.—Cream; Butter; Cheese; Condensed Milk; Dried Milk.

(See special conditions transmitted herewith applicable to Exhibits in this class.)

II.—Bacon; Hams; Lard; Potted and Tinned Meats; Sausages Meat, Soups; and Sauces.

III.—Bottled, Canned, and Pulped Fruits; Jams; and Jellies.

IV.—Confectionery; Pickles.

V.—Cider; Rhubarb Wine.

VI.—Dried Vegetables; Vegetable Soups.

VII.—Eggs; Honey.

VIII.—Oatmeal.

IX.—Tinned, Dried, and Preserved Fish.

X.—Irish-grown Tobacco.

XI.—Biscuits.

XII.—Soap.

XIII.—Margarine.

Entrance Fee for Classes I. to X., inclusive, 20s. for each Class.

„ „ XI. to XIII., „ 40s. „

No entry fees will be charged to Creameries registered under the Department's scheme which have attained a position considered satisfactory by the Department in recent Surprise Butter Competitions.

Entry fees will not be returned, except when applications are declined.

3. *Tasting Stalls.*

Special arrangements have been made for Tasting Stalls for (1) Butter, Cheese, and Cream; (2) Jams, Jellies, Bottled, Canned and Pulped Fruits; (3) Cider and Rhubarb Wine. Exhibitors of these articles may arrange to have a selection of their exhibits shown on the tasting Stall therefor. Samples for this purpose must be provided free. The Department will provide attendants to show samples for tasting. Representatives of exhibitors will be permitted to use the tasting stalls to show their firms' productions.

4. *Special Tasting Stalls.*

Approved Exhibitors, on payment of 40s. extra fee, will, so far as space permits, be allotted floor space, not less than 50 square feet, for their sole use, in addition to their exhibit on the main Stand, to show, and subject to the special regulations of the Exhibition authorities, to give or sell tasting samples of their goods; they must erect and decorate their own Stands on the spaces allotted to them, and provide their own attendants.

5. Flowers, from approved Irish growers, will be exhibited free at Glasgow, if the exhibitors will undertake to supply fresh blooms daily.

6. All entry forms, accompanied by the necessary fees, must reach the offices of the Department not later than January 20th for Birmingham, and March 15th for Glasgow. The space will be allotted and the exhibitors advised with as little delay as possible.

7. All exhibits must be delivered at the Show for which they are intended not later than 11 o'clock on the day *preceding* the Show. Exhibits arriving after that hour will not be accepted. *Exhibits will not be accepted unless carriage is prepaid to the place of exhibition.*

8. Address labels and numbers will be sent to each exhibitor. Such labels must be carefully fixed to the exhibits when being forwarded to the Exhibition.

9. The Department will take all ordinary care of exhibits, but will not be responsible for any loss or damage which may occur thereto, before, during, or after the Exhibitions; nor will the Department be responsible for any financial loss which exhibitors may incur by reason of failure to dispose of exhibits at prices demanded therefor by exhibitors.

10. Exhibitors will be required to state on the Entry Form what they desire to have done with their exhibits at the close of the Exhibitions; and if it is desired that exhibits should be sold, a *pro-forma* invoice *must be* supplied when the goods are forwarded, on which should be stated the lowest prices which are to be accepted for the exhibits. If the Department's representative does not obtain the lowest price authorised for exhibits to be sold, or if no instructions are sent as to the disposal of exhibits, they will be returned to exhibitors, carriage forward.

11. The Department reserve the right to (a) decline to place any exhibit on the Stand, and (b) to remove it if, having regard to its condition, appearance, or for any other reason, it is not considered desirable to expose it; the Department's representative at the Exhibition to be the sole judge in this and any other matters connected with the exhibit. The Department will arrange for the staging of all exhibits. All exhibits will be removed from the Exhibitions before the expiration of two days after they close.

12. The Department reserve the right to limit any exhibit as to size or quantity. If the number of exhibits entered for any one Exhibition is more than can be staged thereat, the Department reserve the right to make a selection from the exhibits; but in doing so they will, as far as possible, consult the wishes of the exhibitors.

13. The Department's representative will transmit inquiries and distribute Price Lists on behalf of exhibitors, but he will not take orders nor quote prices verbally.

14. Plain white printed cards giving the name and address of each exhibitor will be provided by the Department and placed on the exhibits. Exhibitors must attach their ordinary labels or brands to the articles sent for exhibition. Showcards, other than those provided by the Department, will not be allowed, except on the tasting Stalls, unless approved by the Department.

15. Exhibitors are specially requested to have representative or local agent in attendance to take orders, so that they may derive the full benefit of their exhibits.

16. Arrangements are being made by the Department to effectively advertise these exhibits of Irish produce among the Wholesale and Retail Grocery and Provision Trade in the districts in which the Exhibitions will be held.

DEPARTMENT OF AGRICULTURE AND TECHNICAL
INSTRUCTION FOR IRELAND.SCHEME FOR IMPROVEMENT IN THE MANAGEMENT OF
CREAMERIES, 1908-9, AND REGISTER OF
CREAMERIES, 1907-8.

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SCHEME FOR IMPROVEMENT IN THE MANAGEMENT OF CREAMERIES.*

INTRODUCTION.

With a view to encourage and assist improvement in the very important work of the management of creameries, the Department have decided :—

- (1.) To arrange for visits of the Department's Instructors in Dairying to creameries and auxiliaries.

* Throughout these regulations the term "creamery" does not include auxiliaries where milk is separated and the cream sent elsewhere to be made into butter.

- (2.) To publish annually a Register of suitably equipped and well-managed creameries and auxiliaries.
- (3.) To make provision during the winter for courses of instruction in dairy technology, with special reference to creamery management.
- (4.) To provide scholarships for students in creamery management.
- (5.) To award certificates of competency to creamery managers under prescribed conditions.
- (6.) To hold annually series of surprise butter competitions.
- (7.) To conduct experiments on points requiring investigation.

I.—REGULATIONS, 1908-9.

1. *Visits to Creameries from Instructors in Dairying.*

With a view to afford sufficient facilities for obtaining technical advice and assistance in the management of creameries, the Department have made arrangements by which proprietors can have their creameries and auxiliaries periodically visited free of charge by Instructors in Dairying, appointed by the Department. Under these arrangements all creameries and auxiliaries, whether co-operative, proprietary, or joint stock, from which applications on Form A/175 are duly received and accepted by the Department, will be visited periodically by the Department's Instructors. On the occasion of each visit all necessary advice will be afforded on matters relating to dairying operations, and a memorandum embodying the Instructor's observations on the condition of the creamery and staff and summarising the technical advice and other recommendations will be made and will subsequently be issued to the proprietor, president, chairman or secretary, and to the manager of the creamery.

Creameries and auxiliaries from which applications on Form A/175 are accepted will be retained on the list of those to be visited by the Department's Instructors until notification is given to the contrary. The Department, however, reserve the right to remove from the list at any time creameries or auxiliaries the proprietors or managers of which evince no desire to profit by the instruction afforded.

Applications for visits of the Instructors for any special purpose, *e. g.*, the preparation of sketch plans and notes for creamery buildings, or suggestions for specifications for machinery, should be made on Form A/174. It is, however, to be understood that except in cases of special urgency applications of this nature cannot receive prior attention to those made on Form A/175.

The Department may, without assigning any reason, refuse to send an Instructor to any creamery or auxiliary.

In future application for visits from the Instructor involves entry for Registration.

2. *Registration of Creameries and Auxiliaries.*

All creameries and auxiliaries entered on Form A/175, the management and condition of which are found by the Department to be worthy of recognition, will be placed on the Department's Register of Creameries published early in the following year.

When registered a creamery will be required to forward butter to each of the Surprise Butter Competitions. See requirements for Registration (11).

Applications from apprentices or pupils in creameries for admission to the examination for the Department's Creamery Managers' Certificates will be considered only in the case of those who have been trained in Registered Creameries under approved managers. (See page 517).

The requirements for Registration in the case of creameries* are :—

- (1.) That the manager is capable.
- (2.) That reasonable steps are taken by the proprietor and manager of the creamery to secure a supply of clean milk.
- (3.) That strict cleanliness and order are manifest around the creamery, in the creamery, and in the persons of manager, employes, and pupils.
- (4.) That a proper system of bookkeeping and business methods is in operation.
- (5.) That the buildings and equipment are suitable.
- (6.) That the premises and methods are at all times open to inspection by the Department.
- (7.) That defects indicated by the Department's Inspectors and Instructors are remedied with the least possible delay.

[The Department would not feel warranted in incurring the expense of repeatedly inspecting creameries and auxiliaries the proprietors or managers of which show no inclination to carry out necessary improvements, indicated by the Department's Inspectors and Instructors. Applications from creameries and auxiliaries previously struck off the list of those inspected by the Department must be accompanied by a statement of the efforts which have since been made towards effecting the requisite improvement in each case. If, when the creamery or auxiliary is inspected, it should be found that the statement in question is incorrect in any particular the Department may summarily remove the creamery or auxiliary from the list of applicants and exclude it from participating in any portion of the Department's scheme.]

- (8.) That the 56-lb. pyramid boxes and the 112-lb. kiels used in the creamery are those approved by the Department as standard butter packages (see page 525 *et seq.*).
- (9.) That apprentices and pupils (if any) receive efficient training and instruction.
- (10.) That, *in the case of creameries having auxiliaries under their control*, the creamery's auxiliaries are also entered.

Under this arrangement applications from auxiliaries for visits of the Department's Instructors in Dairying will not be entertained unless the "central" creameries with which they are connected have also applied for visits, except in the case of independent separating stations not under the control of the churning stations which they supply with cream.

Registration of auxiliaries will be granted in the cases which fulfil the foregoing conditions (1) to (7) inclusive.

* See footnote, page 513.

And in the case of creameries on the Register for 1907-8. (See page 541).

- (11.) That the creamery forwards exhibits of butter to the Summer and Winter series of Surprise Butter Competitions to be held by the Department in 1908-9.

[Failure to forward duly an Exhibit for any one Competition will—except in circumstances which, in the opinion of the Department, afford a satisfactory excuse for such failure—disqualify a creamery for Registration and further visits of the Department's Instructors in Dairying.]

The Register, which is subject to annual revisions, contains the names of each creamery and auxiliary accepted for Registration on the result of the previous year's inspections, as well as the names of the manager, and of the president, chairman, proprietor, or general manager of the creamery or auxiliary. In addition the Register will indicate those creameries the management or equipment of which merits special commendation. In considering suitability for Registration the Department attach much more importance to *cleanliness and order* in and around the creamery or auxiliary and to a clean supply of milk than to elaborate and expensive equipment. At the same time due consideration is given to the provision of an efficient equipment. The "Notes on Creamery Management," printed on pages 528 to 533 of this paper, define in detail the standard of efficiency that should be aimed at by managers of creameries and auxiliaries.

The Department may, without assigning any reason, refuse to inspect or to register any creamery or auxiliary, and in all cases of dispute the Department's decision shall be final.

Proprietors and managers of creameries and auxiliaries who desire to have such places registered for the year 1908 must forward Form A 175, to be obtained from the Department, Upper Merrion-street, Dublin, accurately filled in, so as to reach the offices of the Department on or before the last day of May, 1908. Applications after this date may be considered in the case of managers who, having duly applied or having been registered in the year 1907, subsequently remove to creameries or auxiliaries the proprietor or late manager of which has not applied, but registration for the year 1908 will not be entertained in the case of creameries or auxiliaries applying after 1st July, 1908, even though such places may receive visits from the Department's Officers for that year.

No creamery can take part in the Surprise Butter Competitions till it is registered.

3. *Winter Courses of Instruction.*

During the winter, courses of instruction in the subjects of examination for the Creamery Managers' Certificates may be provided.

Attendance at the annual course of instruction for students of agriculture at the Albert Agricultural College, Glasnevin, is recommended as a preliminary general training for young men who may intend to become creamery managers.

4. *Scholarships for Students in Creamery Management.*

One or more scholarships tenable at the Royal College of Science, Dublin, will be offered in 1908 to students who desire to specialise in

subjects relating to the management of creameries. The date, place, and subjects of examination are set forth in Leaflet A 133 (a), which, together with the form of application for permission to attend the examination, may be obtained from the Department. The last date for receiving applications will be 15th August, 1908.

5. *Creamery Managers' Certificates.*

An examination for these certificates is held annually in March. The subjects of the examination are set forth on pages 518 to 522 of this pamphlet. Due notice of time and place will be given to applicants.

To the examination in 1909 will be admitted—

- (a.) Persons who for the whole season* immediately preceding the examination have managed a registered creamery† to the satisfaction of the Department.
- (b.) Assistant managers, apprentices, and pupils who for the whole season immediately preceding the examination have worked in a registered creamery† under an approved manager,‡ and who furnish a satisfactory certificate from him.
- (c.) Persons who for the whole season immediately preceding the examination have managed a registered auxiliary to the satisfaction of the Department.
- (d.) Students who have attended a full course of instruction approved by the Department.

[The following courses will be approved for the examination to be held in 1909:—

- (1.) The courses provided at the Albert Agricultural College, Glasnevin since 1902-3, inclusive, and the short courses for creamery managers held in 1904-6, inclusive, at the Royal College of Science, Dublin.
- (2.) Any course of instruction during the winter 1908-9 which the Department may notify, at a later date, as approved.]

The Creamery Managers' Certificate will be granted to candidates of class (a) who are successful at the examination. A provisional certificate, which—on application being duly made—will be exchanged for the Creamery Managers' Certificate after the holder has, to the satisfaction of the Department, managed a registered creamery for at least one whole season, will be granted to the successful candidates of classes (b), (c), and (d).

The Managers' Certificate is valid only for the year in which it is issued. New Certificates will, however, be issued annually by the Department to holders of lapsed Certificates on the condition that the holder in each case shows that he has managed for the preceding season a creamery registered by the Department on the results of that season's inspections.

Candidates must satisfy the Department that they are at least twenty years of age on the last day of January previous to the examination.

* The season shall be considered to begin on 1st May and to terminate on 31st October.

† See footnote, page 513.

‡ An approved Manager is one who possesses the qualifications set forth in foregoing clause (a).

Applications for admission to the examination should be made not later than 15th February, 1909, on Form A 137, to be obtained from the Department, and must be accompanied by a deposit of £1, which will be returned if the candidate presents himself for examination, or if his application is not accepted.

Copies of the Forms of Certificate issued to successful candidates are printed on page 539 of this paper.

A list of Technical Schools in which instruction is given in one or more of the subjects of the examination for the Certificates is printed on pages 536 to 539 of this paper.

SUBJECTS OF EXAMINATION FOR CREAMERY MANAGERS' CERTIFICATES.

N.B.—The Text Books mentioned within brackets thus [] under each subject will be found useful to candidates. The latest editions of these books can be obtained through any bookseller, and the various Acts of Parliament may be procured from Messrs. Ponsonby, 18 Nassau-street, Dublin. Candidates should also carefully read the pamphlets and leaflets issued by the Department. It is not possible to obtain books which adequately cover the subjects of the examination and it is to be understood that the questions will in every case be set from the Syllabus, and not from Text Books.

i.—PHYSICAL SCIENCE.

Physics.

Weighing and measuring.

The balance.

Graduated vessels.

Solids, liquids, gases.

Density, hydrometers.

The spring balance as a force meter.

Friction, lubricants.

Centrifugal force.

Work and power—their measurement.

Fluid pressure : pumps, syphons, wells.

Effect of heat on the properties of matter.

Temperature and thermometers.

Evaporation and condensation.

Transfer of heat—conduction, convection, and radiation.

Heat a measurable quantity.

Units of heat, specific heat, latent heat.

Relation between pressure and boiling point.

Refrigeration—principles involved.

Heat and work.

[“*Introductory Physics*,” Gregory & Simmons. (Macmillan & Co.) Price 2s.
Omit §§ 10, 11, 14, 15, 16, 80, 81, 91, 92, 128, 129, 130; and chapters
VII. and XI.]

Chemistry.

Fundamental principles.

Indestructibility of matter.

Simple and compound substances.

Chemical change.

• Solution ; precipitation ; filtration ; oxidation ; reduction.

The Atmosphere.—Its composition; part it plays in combustion and in vital changes.

Water.—Composition, physical and chemical properties; natural waters.

Bases, acids, and salts: acidity and alkalinity—quantitative determination.

General knowledge of the properties of the following substances and their compounds as met with in dairying:—

Potash, soda, lime, magnesia, ammonia, sulphuric acid, hydrochloric acid, borax, and boracic acid.

Lactic, butyric, and salicylic acids, formalin, amyl, alcohol, albumen, casein, fats, milk-sugar.

[“*Elementary Chemistry*,” Furneaux. (Longmans.) Price 2s. 6d.
Omit §§ 171, 181, 182, 219, 220, 221, 222, 223, 224: and chapters XXII., XXIII., XXIV., XXV.]

ii.—DAIRY BACTERIOLOGY.

Microscopical study of milk.

Experimental proof that souring of milk is due to bacterial activity.

Sources of bacterial contamination.

Care of milk; influence of temperature upon the keeping qualities of milk.

Biology of the commoner forms of bacteria, yeasts, and mould fungi.

Cultivation of bacteria and moulds; preparation of pure cultures.

Disinfection and application of disinfectants.

Bacterial examination of air, water, and dust.

Injurious bacteria of milk; milk in relation to disease.

Defects in milk due to improper feeding of cows.

Methods of preserving milk: pasteurisation, sterilisation, filtration, refrigeration.

Objections to the use of chemical preservatives.

Cream-ripening; use of “starters.”

Importance of extreme cleanliness in dairies.

Comparison of the bacterial contents of good and bad keeping butters.

Bacterial faults in butter.

Coagulation of milk.

The part played by unorganised ferments and by bacteria, yeasts and moulds in cheese-ripening.

Comparison of the ripening changes that take place in hard and soft cheeses.

Faults in cheese due to bacterial agency.

Bacterial treatment of creamery sewage.

[“*Outlines of Dairy Bacteriology*,” H. L. Russell. (The author, Madison, Wisconsin, U.S.A.) Price 4s. 6d.

OR—

“*Bacteria in Milk and its Products*,” H. W. Conn. (P. Blackistone, Son & Co., Philadelphia.) Price 6s.]

iii.—DAIRY TECHNOLOGY.

Composition and properties of milk and its products, and of their constituents.

Causes of variation in milk.

Changes produced in milk and its products by heat and bacteria.
Physical characteristics of good milk, cream, and butter.

Sampling at farm and creamery ; testing and analysis of milk,
cream, butter, and cheese.

Acidity and its estimation.

Factory tests for quality of milk.

Physical and chemical changes involved in the manufacture of
cream, butter, and cheese.

Preservation, conveyance, and marketing of milk.'

Cream raising and separation ; the cream trade.

Ripening of cream.

Churning ; conditions influencing yield and quality of butter.

Washing, salting, and working of butter ; packing for market.

Conditions affecting quality of butter.

Chilling and cold storage.

Separated milk and butter-milk ; uses and value.

Standards of quality for milk, cream, butter, butter-milk.

Hard and soft cheese making : principles of manufacture ;
ripening and storage.

[*Creamery Buttermaking*," John Michels. (*The author, Lansing, Michigan, U.S.A.*). Price 5s.

OR—

"*Principles and Practice of Buttermaking*," M'Kay and Larsen. (*Chapman and Hall.*) Price 6s. 6d.]

iv.—DAIRY ENGINEERING.

Buildings for Creameries.

Selection of site ; general arrangement of a creamery to facilitate
work ; space required.

Plans of creameries.

Building materials.

Ventilation ; lighting ; drainage.

Approximate cost.

Water Supply.

Source : selection of a site for well ; sinking and lining of wells ;
artesian wells ; suitability of water for dairy purposes ; means of
purification ; storage.

Sewage.

Methods of disposing of creamery sewage.

Machinery.

Elementary fitting ; packing of glands ; adjustment of bearings ;
shafting and brackets ; lining up of machines ; tools required in
a creamery.

Boilers.

Types of boilers ; advantages and disadvantages of each.

Evaporative power of boiler needed for central and auxiliary
creameries.

Insulation and setting of boilers.

Fittings attached to boilers ; their use and care.

Common defects arising in boilers.
 Firing and care of boiler : cleaning.
 Use of water-purifier.
 Various methods of economising steam.
 Feed-water heaters.

Coal.

How to judge coal.
 Consumption of fuel ; economical stoking.

Chimneys.

Steel and brick ; approximate cost ; advantages and disadvantages of each.

Steam Engine.

Construction and management of ordinary non-condensing engine.
 Power required ; steam consumption.

Lubrication.

Oils, greases, &c.
 Oil holders and filters.

Machines.

Various types of weighing machines, heaters, coolers, separators, tanks, vats, churns, pumps, butter-workers, refrigerating plants.
 Their capacity, construction, and approximate cost.

Arrangement of Machinery.

Transmission of power.
 Care of belts ; belt fasteners.
 Pulleys and gearing.
 Speed of various machines, and description of methods for increasing and reducing speed in machinery.

Arrangement of work in a creamery.

Hands required.

[*"Elementary Manual on Steam and the Steam Engine,"* Professor Jamieson.
 (C. Griffin & Co.) Price 3s. 6d.
 Omit Chapters IV., VII., XVIII., XIX., XX., XXIV., XXV.

OR—

[*"First Stage Steam,"* J. W. Hayward. (W. B. Clive, London.) Price 2s. 6d.
 Omit as much of pp. 4 and 5 as relates to *"The Planimeter,"* together with §§ 9, 18, 40, 60, 61, 62, 65, 77, 78, 81.]

V.—BUSINESS METHODS.

Office equipment.
 General business terms and abbreviations.
 Correspondence, care of ; telegrams.
 Postal regulations.
 Business forms.
 Banking : cheques, loans, overdrafts.
 Railway rates, regulations and forms.

Purchase of materials—

Milk, valuation of.

Quotations for various goods required in a creamery.

Marketing of produce—**Commencing and building up a trade connection—**

How to obtain information as to the financial standing of prospective agents and customers.

Market charges and regulations.

Trade routes.

Special requirements of various markets.

Insurance—fire, boiler, and employer's liability.

Advertising: quotations and circulars.

Calculations—

Yield.

Cost at each stage of manufacture.

Monthly estimates.

Comparison of returns from milk, cream, butter, and cheese trades.

Labour and wages.**Book-keeping.**

Use and balancing various books used in creameries.

Preparation of returns.

Depreciation allowances.

Balance sheet.

Allocation of profits.

[*"Modern Business Methods," Hooper and Graham. (Macmillan & Co.) Price 2s. 6d.*

Omit pages 144 to 153, and Chapters XXVII. and XXVIII.

AND—

"Practical Lessons in Bookkeeping," Jackson. (University Tutorial Press, Ltd.) Price 3s. 6d.]

Sale of Food and Drugs Acts, 1875 to 1899; Margarine Act, 1887; the Fertilisers and Feeding Stuffs Act, 1906; the Employers' Liability Act, 1880; the Workmen's Compensation Act of 1906; the Factory and Workshop Act, 1901; Rivers Pollution Prevention Acts, 1876 and 1893; and so much of the Public Health (Ireland) Acts, 1878 to 1896, and the Industrial and Provident Societies Act, 1893, as may be applicable to creameries; the Dairies, Cow-Sheds and Milk Shops (Ireland) Order of August, 1879, and subsequent Statutory Orders on this subject applying to Ireland; the Butter and Margarine Act, 1907; the Public Health (Regulations as to Food) Act, 1907; the Public Health Acts Amendment Act, 1907; the Dairies, Cow-Sheds and Milk-shops (Ireland) Order of 1908.

(It is not intended that candidates should burden their memories with the details of the above Acts, but rather that they should be able to explain intelligently the purport of any clause in an Act placed before them.)

6. *Surprise Butter Competitions.*

The object of these competitions is to induce creamery managers and others engaged in butter-making to give increased attention to every detail in the making and packing of butter, and particularly to cleanli-

ness in every stage of the work. The reputation of Irish butter must depend on the degree in which these two essentials, viz., cleanliness and attention to details, are possessed by Irish buttermakers. But unless interest in the work can be increased and sustained, and unless those engaged in the industry bring into the work a certain amount of enthusiasm, accompanied by a desire and a determination to excel, the qualities which mark the successful buttermaker will not be perpetuated, and the possibilities of Ireland as a butter producer cannot be realised to the full. Fortunately, buttermaking is an occupation which becomes engrossingly interesting to those who have studied the numerous scientific problems which it presents to the thinking mind. The courses of instruction for creamery managers have been instrumental in arousing interest in the scientific side of dairying, and it is hoped that these competitions may serve the further useful purpose of stimulating many creamery managers to greater sustained practical efficiency. They certainly should set up a standard of comparison by means of which buttermakers will be able to measure their progress towards perfection.

Two series of Competitions will be held between 1st May, 1908, and 30th April, 1909, viz., (1) the Summer series, and (2) the Winter series. The proprietors of creameries must undertake to have butter made at their creameries on at least three days weekly during the period covered by the Winter competitions (these days to be Monday, Wednesday, and Friday), in order that there may be sufficient scope for "Surprise" in the competitions, and that all competing creameries may be working on the same days in the week.

The following is the procedure which the Department intend to adopt.

On not more than eight occasions between 1st May and 31st October, 1908, for the Summer competitions, and on not more than four occasions between 1st November, 1908, and 30th April, 1909, for the Winter competitions, the Department will forward to each registered creamery a telegram requesting the recipient to send to an address in Dublin a box, keg, or kiel of butter made on the day the telegram is despatched, from cream separated on a preceding working day. The butter at each competition may be judged one or more times by one or more competent and independent persons appointed by the Department, and in one or more sections according as the number of competitors renders desirable.

Provided that the judges consider the exhibits show sufficient merit, the following prizes will be given in each competition on the basis of the highest total number of points, viz. :—

Prizes for first class,	£2 each.
Prizes for second class,	£1 „

In addition a sum of 10s. will be awarded in each case to the dairy-
maid or *actual* maker of an exhibit obtaining a First Class prize.

Until further notice the following scale of points will be adopted as the basis in judging :—

Flavour,	60 points.
Texture,	25 „
Colour,	5 „
Packing and finish,*	10 „
Total,	100 „

All prizes will be paid at the end of the season.

* See Condition 2 of Competitions.

CONDITIONS OF THE COMPETITIONS.

1. These competitions are open to butter made in any registered creamery in Ireland, whether co-operative, joint stock, or private, which complies with the conditions of the competitions.

2. The quantity of butter in each exhibit must be either 56 lbs., or 112 lbs., packed in a box, keg, or kiel, similar to those in regular use by the competitor. In special circumstances the Department may, in the case of Winter Competitions, accept a smaller quantity of butter, but in all such cases a previous arrangement, in writing, must be made with the Department, both as regards the quantity of butter and the package to be used.

Competitors using packages for the competitions other than those in general use at their creameries will be disqualified from participating in any future competitions, and will forfeit any prizes that may have been awarded to their exhibits. They will also be struck off the list of registered creameries and the services of the Instructor in Dairying withdrawn.*

3. The butter must be made on the day on which the telegram is despatched by the Department, *from cream separated on a preceding working day*. The butter must be forwarded by passenger train, carriage paid, on the same day as that on which it is made.

4. Excepting the direction labels supplied by the Department, there must be no mark or label in or on the package of butter which might indicate its origin.

5. The carrying Company's receipt must be transmitted to the Department by post on the day the exhibit is forwarded. Unless the carrying Company's receipt is received at the Office of the Department by the ordinary postal delivery on the morning of the day following that on which the telegram is despatched, the exhibit will be liable to be disqualified.

In the event of a competitor being unavoidably prevented from posting the receipt in question in time for transmission to Dublin as required, he is advised to have the letter containing the receipt registered, and to transmit to the Department (in one of the addressed envelopes marked Surprise Butter Competitions) the certificate of posting showing that the letter was handed in at the Post Office on the requisite date.

6. Butter containing more than 16 per cent. of water, or more than 3 per cent. of salt, will be ineligible for a prize.

7. Butter containing any preservative other than salt will be disqualified.†

* See note under Requirements for Registration No. (8) page 515.

† NOTE.—This condition does not mean that preservatives other than salt may not be used in the butter made and sold at the creamery, if required by the purchasers. As the idea underlying the competitions is to ascertain what defects, if any, there are in the butter, and as preservatives other than salt may conceal to some extent defects which would otherwise be obvious and thus tend to defeat the object of the competitions, the above change has become necessary in consequence of the large number of makers who do not find it essential to use such substances to produce butter of the highest quality and keeping properties.

8. The butter sent in for competition will be paid for by the Department at the end of the season. The price given will be based on the current market rate prevailing for the various classes of butter at the date on which the telegrams are despatched, and shall be determined by the judges.

Any butter which reaches the Department in an unsatisfactory condition or which develops defects it is desirable that the competitor should see will not be paid for, but will be returned to the competitor at his own risk.

9. Creameries entered for the competition must at all times be open to the inspection of the Department's officers.

10. Any departure from these rules will disqualify the competitor.

11. The Department may, without assigning any reason, refuse to accept for competition butter from any creamery, and in all cases of dispute the Department's decision shall be final.

7. Experiments and Investigations.

From time to time experiments may be organised by the Department in regard to matters connected with creamery management which require investigation,

The Department have, during 1907, conducted tests as to the suitability of steel "cut clout" nails, plain and cement-coated, for use in securing the ends to the sides of butter boxes. The results of such tests, however, do not justify the Department in making any alteration in that portion of the specification for standard butter boxes dealing with nails as set forth on page 526.

Experiments were also made with "whitewood" to ascertain whether it possessed any advantage over the timber ordinarily in use for the construction of butter boxes. The results are summarised under the Report on Surprise Butter Competitions for 1907 on page 535.

The experiments with "pure cultures" for cream ripening were continued during 1907, about 40 creameries being regularly supplied with them.

Arrangements will be made for a regular supply in 1908 of "pure cultures," provided a sufficient number of creameries intimate their willingness to pay a fee of £2 2s. therefor.

II.—SPECIFICATIONS FOR STANDARD BUTTER PACKAGES.

Experience has shown that uniformity in the shape and size of packages of the same type is appreciated by butter merchants, and that it is of advantage that creamery proprietors and their customers should have an approved standard of quality for packages, which might be generally recognised and insisted on. While a general improvement has taken place within recent years in the marketing of Irish creamery butter, which is now in many cases forwarded to the markets in excellent packages, the want of a uniform standard 56 lb. box and 112 lb. kiel is still felt. Everyone acquainted with the industry is aware that there are considerable variations, not only in the strength of the timber, but also in the capacity, dimensions, and methods of construction of the 56 lb. boxes at present in use. The same remark applies to the 112 lb. kiels, as well as to other packages.

(See remarks of judges attending Surprise Butter Competitions, page 535.)

With a view to encourage the general adoption of the "standard" packages the Department have decided that the 56-lb. boxes and 112-lb. kiels to be used in creameries entered for the Surprise Butter Competitions in 1908 must conform with the specifications approved for these packages.

The following are the specifications in question :—

SPECIFICATION FOR STANDARD 56 LB. PYRAMID BOX.

(1.) *Timber.*

Well-seasoned wood as free as possible from odour, resin, and knots, planed smooth, and the edges either planed or cut with a fine saw. Thickness to be $\frac{3}{16}$ -inch full.

(2.) *Number of separate pieces of Timber in Box.*

- (a.) Sides to be made up of two pieces.
- (b.) Ends to be made up of two or three pieces.
- (c.) Bottom to be made up of two pieces.
- (d.) Lid to be made up of two pieces.

(3.) *"Break."*

To be not less than $3\frac{1}{4}$ inches (inclusive of the tongue or groove).

(4.) *Nails.*

Cement-coated steel wire nails of the under-mentioned numbers, lengths, and gauges to be used:—

Number of nails attaching side to end of box to be 8 ; length of nail to be $2\frac{1}{2}$ inches ; gauge to be 13.

Number of nails in bottom to be 12 ; length of nail to be $1\frac{3}{4}$ inches ; gauge to be 13.

Number of nails in lid to be 12 ; length of nail to be $1\frac{3}{4}$ inches ; gauge to be 13.

(5.) *Lid.*

Lid to cover box exactly without projecting over sides or ends of box.

6. *Dimensions (internal).*

Bottom to be 11 inches × 11 inches.

Top to be 12 inches × 12 inches.

Depth to be 13 inches.

A divergence of one-eighth of an inch in any dimension is considered sufficient to cover all allowances for errors in cutting the timber.

It is recommended that an experienced person should be employed to put the boxes together when the material is purchased in "shooks." The "shooks" should be secured with string in place of wire, which rusts and disfigures the material.

SPECIFICATION FOR STANDARD 112 LB. KIEL.

To be made of best white beech wood, thoroughly seasoned.

1. *Dimensions (internal)*

Diameter, $13\frac{3}{8}$ inches at top and bottom, $15\frac{3}{4}$ inches at bulge. Distance from upper surface of bottom to lower surface of lid to be $19\frac{5}{8}$ inches.

2. *Hoops.*

Ten hoops to be used ; 5-feet "half hoops" to be used at top and bottom of kiel ; 6-feet "half-hoops" to be used at bulge.

The use of "twigged" or "notched" hoops to be optional, but preference to be given to "twigged" hoops.

3. *Lids and Bottoms.*

To be made up of two, or at the most three, separate pieces—cut $\frac{1}{2}$ -inch, with $7/16$ inch finish.

4. *Weights of Finished Kiel.*

To be not less than 13 lbs.

The following is a list of the firms in Ireland who have informed the Department that they will be prepared to supply the standard packages during 1908 :—

SUPPLIERS OF BOXES AND KIELS.

Burmeister & Wain, Ltd., 105, Middle Abbey-street, Dublin.

Dairy Supply Co., Ltd., 42, Chichester-street, Belfast, and King-street Cork.

Eustace & Co., 44, Leitrim-street, Cork.

John Houlihan, Raleighstown, Grange, Kilmallock.

Irish Co-operative Agency Society, Central Depot, Limerick, and 44 Hill-street, Belfast.

James M'Mahon, St. Alphonsus-street, Limerick.

George Perry & Co., Ltd., Camden-row, Dublin.

Francis Spaight & Sons, Ltd., Henry-street, Limerick.

John Donovan & Sons, Ltd., St. Dominick's Steam Mills, Tralee.

SUPPLIERS OF BOXES ONLY.

J. Barry & Sons, Patrick-street, Fermoy.

Graves & Co., Ltd., Park-road, Waterford.

B. Haughton & Co., Kyrls-street, Cork.

T. Humphreys & Sons, Lurga, Mohill.

Jones, Bros., & Daley, Ltd., 28, Ormeau-avenue, Belfast.

M. Kelly & Co., New Ross.

Wm. M'Evoy, Ltd., Mountmellick.

F. M'Mahon & Sons, Dungannon.

Maher Bros., Freshford, Co. Kilkenny.

W. F. Redmond & Co., Newry.

SUPPLIERS OF KIELS ONLY.

The Baltic Firewood Co., Ltd., Sydenham-road, Queen's-quay, Belfast.

The Irish and Baltic Stave Co., 10, Cecil-street, Limerick.

Thomas O'Neill, 54, Little Patrick-street, Belfast.

(The foregoing specifications and list of firms are subject to annual revision. Firms desiring to have their names included in the list for 1909 should apply prior to 1st January, 1909.)

III.—NOTES ON CREAMERY MANAGEMENT.

The undermentioned summary of requirements for maintaining a creamery in a satisfactory condition in regard to cleanliness and order, equipment and general good management, indicates the standard to be aimed at by the Department's Inspectors and Instructors in making recommendations to creamery proprietors and managers and in reporting to the Department.

The condition of the creamery and the appearance of the manager and employes should be such as will create a good impression. It will almost invariably be found that neatness or slovenliness in the personal appearance of the manager will be reflected in the state of the creamery itself. Any manager who is aware of the supreme importance of cleanliness, and who nevertheless is so careless as to frequent his creamery in unbrushed and dirty clothes, or to take part in the manufacture of butter with unwashed hands and dirty finger nails, or who is otherwise slovenly in his dress and appearance, may generally be assumed to be also negligent in regard to the condition of his creamery. On the other hand, a clean and tidy manager will usually have under him clean and tidy assistants, and the qualities of cleanliness and order conspicuous in the staff will not only be extended to the creamery and surroundings but will also in some measure be communicated by force of example to any of the milk suppliers who may be inclined to be remiss in these respects.

The grounds and surroundings should be clean, tidy, and properly drained. The separated milk passage should be laid with an impervious pavement of sufficient dimensions (14 feet long by 12 feet wide), and sloped to a trapped drain in the centre or at the side.

By suitably planting the grounds with shrubs and trees not only will the premises present a more tasteful appearance, but in time the trees and shrubs will shelter the exterior of the creamery from dust, and will also by acting as a wind-brake prevent dust from rising and being blown into the creamery and thereby contaminating the produce. The grounds where possible should be fenced off from the road, and should be swept daily, the accumulated rubbish being carted away at least once a week.

The exterior of the building should be whitewashed not less than twice each year if constructed of masonry, concrete or brickwork, or well painted, as often as may be necessary, if constructed of wood or galvanized iron.

Dry earth or water-flushed W.C. should be placed at the corner of the grounds furthest from the building and where there is no risk of contaminating the water supply, and should be kept in a clean condition.

The lighting of every portion of the interior should be sufficient in order that the presence of dirt, whether on the walls or floor, or on the tanks, machines, or other appliances, may be easily observed by the staff.

The lighting area should be at least one-tenth of the floor area, preferably one-fifth, exclusive of light from open doors.

The ventilation should be such that when all doors are closed there is still a good current of air to dry the floors and machines rapidly after cleaning.

Besides the ventilators on roofs, &c., several fresh air inlets should be provided near the floor level on all sides.

All floors and platforms should have a sufficient fall ($\frac{1}{4}$ -in. to the foot) in order that spilt milk and the water used for cleansing purposes may run quickly to the open channel, which should be situated not less than six inches from partitions or walls. This channel should be of the same depth throughout.

All drain traps and all down pipes should be situated outside the building.

All drains should be properly trapped, and the sewage conducted to a distance from the creamery and from any road or habitation, so that no nuisance will arise.

An ample supply of water should be provided for cooling milk and cream, washing the butter, and for cleansing purposes generally. Care should be taken that the supply is not contaminated by surface water or the drainage from the creamery. The well should be finished off as described in the Department's Leaflet No. 62.

Ample storage accommodation should be provided for boxes, box timber, and for the sundries usually stocked at a creamery.

The store should be dry and thoroughly well ventilated. All useless materials should be disposed of as soon as possible. Broken boxes, old sacking, and useless machinery lying around the creamery are most objectionable.

The lower portion of all internal walls for a height of four feet from the floor or platform should be coated with cement plaster (smoothly finished off with a steel trowel), or with some other smooth, durable, and impervious material.

In the case of galvanized iron buildings, the concrete work should be carried up to such a height as will provide against any splashing reaching the wood or iron work.

In order to ensure easy and thorough cleaning, the buildings should be of such dimensions that all tanks and machines used for milk, cream, separated milk or buttermilk, can be situated at such a distance from the walls, partitions, and from other appliances or machinery that the attendants can pass freely around them for cleansing purposes, and that the splashing of milk, etc., on walls, partitions, and machines shall be prevented.

A minimum distance of 24 inches is suggested.

All stands or supports for machines should be of iron, as stands of this material are more durable and more easily cleaned than similar stands or supports of wood or concrete.

The staff should be provided with two sets each of overalls—for the dairy workers, white; for the engine-driver, brown or blue. The overalls should be washed weekly or oftener if necessary.

Dirty milk, stale milk, or milk delivered in dirty cans must be rejected. The proprietor and manager of the creamery should afford the Department's Instructor all reasonable facilities for examining the milk supply, and the manager should be on the receiving platform while the Instructor is carrying out his examination. The manager should make arrangements for examining regularly all cans in the manner indicated by the Instructor.

During the working period of the winter months milk should be received on not less than three days during the week (these days to be Monday, Wednesday, and Friday) in the case of central creameries, and Tuesday, Thursday, and Saturday in the case of auxiliaries.

The composite system of daily sampling milk should be adopted, and payments for milk made per pound of butter fat. (See Department's Bulletin No. 4—Miscellaneous Series).

Care should be taken to have the sample bottles loosely stoppered.

All the milk should be pasteurised, either before or after separation.

When the milk or cream is pasteurised, proper appliances should be provided for the preparation of starters.

At "auxiliary" creameries and at "central" creameries with "auxiliaries" the cream should be weighed, sampled, and tested before despatch or on receipt, as the case may be.

The packages and vegetable parchment used should conform with the standards laid down by the Department. (See pages 525 to 527 of this paper and Department's Leaflet, No. 60.)

Provision should be made for a plentiful supply of hot water for cleansing purposes. A good washing-up trough, drain-table, and steaming-jet should also be provided, and permanent steam connections made to all piping through which milk, separated milk, cream, or butter-milk passes.

The piping should have brass unions at distances of not more than 15 feet. The permanent steam connections to piping should be made close to the pumps or inlets. The delivery pipes for separated milk and butter-milk should have permanent steam connections at the elbows below the outlet flange. The washing-up trough should have steam connections, silencers, and unions below the valves, so that the trough may be disconnected, taken out and aired.

By utilising the exhaust steam in a feed water heater, after separation is over, more than sufficient hot water for cleansing purposes will be provided without extra cost.

After use each day all machines and utensils which come in contact with milk or its products should be rinsed with cold water to get rid of milky matter, then scrubbed with hot water to get rid of grease and any particles of curdy matter, and finally rinsed with scalding water.

It would greatly facilitate the cleaning operations if all machines, utensils, and piping—as soon as finished with—are at once thoroughly rinsed with cold water so as to prevent milky matter drying on the surface of these appliances. The coolers, cream vats, &c., should not be wiped; if thoroughly scalded they will quickly dry.

All floors, platforms, and portions of walls splashed with milk or milky matter should be first rinsed down with cold water, then scrubbed with hot water, or with lime and water-mixed.

All piping through which milky matter passes should be first rinsed with cold water, then with hot water, and finally have steam blown through it until the end of the pipe furthest from the steam inlet is scalding hot.

All machines should run quietly and smoothly. The engine, separator frames, and chilling plant, after work is over, should be carefully wiped down with waste free from grit.

The manager should examine the creamery for cleanliness and order morning and evening as follows:—

- (a) Examine all tanks, vats, &c., for stale milk indicating imperfect cleaning, more especially under the flanges and corner plates if on the inside.
- (b) Examine with the fingers for slimy growths the ends of all piping used for milk, cream, buttermilk, and separated milk, the interior of the regenerative heater, and the space under the internal ledge of the heater, and more especially the separated milk and buttermilk delivery pipes. Should piping be in a suspicious condition it is recommended that a section be taken down and examined. As milk or milky water is frequently left in the delivery pipe to the separators, a close examination of this is necessary.
- (c) Lift the covers of all coolers, and examine the space under the ledge. The surface and corners of the cover should be also rubbed with the fingers to detect slimy accumulations.
- (d) Examine lids, bottoms, and gauge strips of milk cans as they arrive.
- (e) Examine with the fingers for slime the bottom of butter box and the floor underneath it. Other tanks close to the floors as well as cream vats, &c., should be examined in a like manner.
- (f) Closely examine the base of the framework of all machines, the gutter under butter-worker, the spaces behind any tanks situated close to a wall and behind the washing-up trough.
- (g) When the tops of coolers are close to ceilings or are in positions difficult of access, make a very strict examination of the tops of the coolers, the ceilings, or other surroundings as the case may be.
- (h) Examine with the hand for slime the lower portions of all walls (especially when behind machines and out of the direct line of light), the sides of platforms, and concrete blocks.
- (i) See that the edges of cream vats are not black, nor the sides greasy.
- (j) See that window ledges are tidy and not used as a scrap heap.
- (k) Examine the store and office for order and cleanliness.
- (l) See that all papers are properly filed, and books entered up daily.

The creamery should be provided with steaming and rinsing jets for the suppliers' cans, and these jets should be used daily.

A supply of lime should be kept on the premises, and a suitable barrel provided for the preparation of lime-water.

The lower portion of all internal walls should be white-washed at least once a week with thin whitewash, the dirt having been previously scrubbed off. Portions of walls less than twenty-four inches distant from machines or utensils from which milk is liable to splash should be scrubbed with lime and water daily.

When the accumulated layers of whitewash make a thick coating, this should be scraped off before a fresh application is made. In all cases the dirt must be scrubbed off, as alternate layers of dirt and whitewash indicate careless work.

The floors should be well scrubbed with lime and water at least once a week.

If a wooden bucket capable of admitting the head of a large bass yard brush be kept at hand with lime and water in it, any portions of the wall or floor can be scrubbed with lime and water at any moment.

The churn, butter-box, and butter-worker should be well scrubbed with lime and water once a week, and the butter-box lifted at least once during the same period.

All utensils should be washed down with lime-water once a week in addition to the daily cleaning.

A mixture of fine lime and washing-soda, or caustic soda alone, should be used to remove any coating from the heater.

The internal surface of a heater should on no account be scraped with a metallic instrument.

Care must be taken when handling caustic soda, as it has a strong corrosive action.

All piping and the iron work of various machines should be painted as often as is necessary, and all bright parts should be polished.

The various duties of the staff should be made clear, and all the work of the creamery should be properly apportioned among the several members. It is recommended that a list of the various duties of the staff be written out and hung up in the creamery.

Machinery Equipment.

The equipment of a "central" creamery should include the following in addition to the usual machinery and appliances. Machines indicated by an asterisk should be included in the equipment of an "auxiliary" creamery.

- * (a) Facilities for heating the milk or cream and separated milk to a temperature of not less than 185° F.
- (b) Facilities for the preparation and propagation of starters in quantity.
- (c) Facilities for mechanical refrigeration.
- * (d) Weighing machines for new milk, cream (in the case of an auxiliary, or of a central creamery with one or more auxiliaries), separated milk, and buttermilk.
- * (e) Facilities for the steaming and rinsing of supplies' cans at the creamery.
- (f) Cream vats fitted with submerged brine-coolers.
- (g) Facilities for the storage of butter during the interval between the workings.
- (h) Apparatus for the determination of the acidity of milk or cream, and the determination of the percentage of water in butter.
- * (i) A feed water heater arranged to supply hot water to the boiler or to the hot water tank.

Office Equipment.

NOTE.—The undermentioned list of office requisites is intended to meet the case of "central" creameries, or of "independent" separating stations. When an "auxiliary" is merely a branch of a "central" creamery, the office equipment need not be so complete. In no case, however, should the items marked by an asterisk be omitted.

The office should be a separate room or space completely partitioned off from the other portions of the creamery. It should be provided with the following requisites in addition to a desk, table and other usual equipment :—

Fireproof safe for books and cash.

* Divided shelving for holding the various books during office hours.

Indexed file for letters. Transfer cases.

Indexed file for invoices or an invoice guard book.

Indexed box file for receipts.

*A number of extra strong apron files with steel springs or other strong file for the following :—

(1) Orders received ; (2) Petty Cash Receipts ; (3) Credit Notes and Debit Notes ; (4) Railway Dockets ; (5) Advice Notes ; (6) Butter Sales Notes ; (7) Butter Merchants' Circulars ; (8) Telegrams ; (9) Quotations for goods ; (10) § Departmental Communications and Reports.

Stationery Rack.

*Facilities for copying letters, invoices, and advice notes.

Letter Trays.

*Receptacle for Waste Paper.

Postal Guide—Triplicate Telegram Book.

*Ready Reckoner.

*Rubber stamps.

Official Railway Map, or railway maps of the various companies. Gazetteed Time-table and Regulations of the local and other Railway Companies by which the produce of the creamery is usually carried. Manuscript table of railway rates (goods train) for produce to towns with which the creamery has business connections, showing class rate, rate for smalls, exceptional or special rates by one or more routes. Delivery book or railway consignment book with counterfoil.

Complete set of books for accounts, including the following :—

General Cash Book. *Petty Cash Book. *Order Book (duplicate). Goods Bought Book. *Platform Milk Book. *Office Milk Book. *Test Book. *Milk Summary Book and Pay Sheet. *Produce Book. Stock Book. Butter Sales Book. Goods Sold Book. Personal Ledger. Impersonal Ledger. *Monthly Estimate Book.

IV.—REPORT ON SURPRISE BUTTER COMPETITIONS, 1907.

(Summer Series.)

One hundred and twenty-eight creameries participated in the Surprise Butter Competitions conducted by the Department in 1907. Five competitions were held during the year, particulars of which are set forth in the following table :—

Telegrams Issued.	Exhibits Judged.	Number of Entries.	Number of Prizes awarded.	
			First Class £2	Second Class £1
7th May, 1907, .	15th May, 1907, .	95	4	9
26th June, 1907, .	3rd July, 1907, .	122	4	11
6th August, 1907, .	13th August, 1907, .	116	5	11
4th October, 1907, .	10th October, 1907, .	29	3	3
16th October, 1907, .	24th October, 1907, .	32	3	3

§ All reports and memoranda of the Department's Inspectors and Instructors, as well as all letters, and other communications received from the Department, and copies of all communications sent from the creamery to the Department should be carefully preserved in a file specially reserved for this purpose. This file, which should always be kept up-to-date, should be seen by the Inspectors and Instructors on the occasion of their visits.

The following creameries obtained prizes at three of the competitions :—Clones C. A. and D. S., Drumholm C. A. and D. S. (3*), Kiltoghert C. A. and D. S. (2), Springfield C. A. and D. S. (2).

The following obtained prizes at two of the competitions :—Bailieboro' C. A. and D. S., Bunkay Bridge C. W. S., Finn Valley C. A. and D. S. Fivemiletown and Brookboro' C. A. and D. S. (1), Irvinestown C. A. and D. S., Scottish C. W. S. (Enniskillen) (2).

The following obtained a prize at one of the competitions :—Abbey dorney C. D. S., Ahoghill C. A. and D. S., Ballinahinch C. W. S., Ballinamore C. A. and D. S., Ballinard C. A. and D. S. (1), Ballyduag C. A. and D. S., Belleek C. A. and D. S., Beltrim C. A. and D. S. (1), Callan C. A. and D. S., Centenary Co-operative Creamery Co. (1), Crossmaglen C. A. and D. S., Derrygonnelly C. D. S. (1), Devon Road C. W. S., Doons C. A. and D. S., Drumbane C. A. and D. S., Duneane C. A. and D. S. (1), Eflin C. A. and D. S. (1), Glenwilliam C. D. S., Granard C. D. S., Grantstown C. W. S., Greencastle C. A. and D. S., Killumney Co-operative Creamery Co., Kinawley C. A. and D. S., Kinelough C. A. and D. S. (1), Leckpatrick C. A. and D. S. (1), Lixnaw C. W. S., Mohill C. A. and D. S., Muckalee C. A. and D. S., Newmarket Creamery (Newmarket Dairy Co.), Omagh C. A. and D. S., Ramelton C. A. and D. S. (1), Tamnaskenny C. D. S.

In addition to the prizes above referred to, a sum of 10s. was awarded in each case to the dairymaid or actual maker of an exhibit obtaining a first-class prize.

The judges at the competitions included representatives of the principal buyers of Irish butter in Great Britain, as well as in Belfast, Cork, Dublin, and Limerick.

A high standard, based on the quality of the best butter sold in the markets of Ireland and Great Britain, was adopted in judging.

On the occasion of each of the competitions a limited number of the managers of the competing creameries were admitted to view the exhibits after the judging had been completed. The judges directed the attention of the managers to any pronounced defects which had been noticed, and subsequently the exhibits were examined in detail by the managers, under the direction of one of the Department's Inspectors.

The reports furnished to the Department by the judges indicate a general improvement in the quality of the exhibits as compared with previous years, and reflect great credit on the makers. The uniformity in flavour, texture, colour, and packing is favourably commented on by the judges, and in a great number of cases the exhibits left little to be desired. A few of the exhibits are described as "off" or "rank" in flavour, but the majority were clean and sweet. Improvement in this respect is largely dependent on the measure of success attending the efforts of the managers to obtain clean supplies of milk, and to keep the creamery and its surroundings in a thoroughly clean condition. Nearly all defects in flavour have their origin in dirt gaining access to the milk, cream, or butter, prior to or during the course of manufacture. In several instances attention was directed to the imperfect texture of

* The figures in brackets after the names of creameries indicate the number of First Class Prizes obtained by such creameries.

the butter, the butter being described as "weak," "spongy," or "loose" in texture—a defect which not only assists in reducing its keeping properties, but also results in a loss in weight when the butter is cut up on the counter. Customers appear to require a firm, close, and waxy butter, and these characteristics can be obtained only by proprietors and managers of creameries paying increased attention to the provision of adequate cooling facilities for both cream and butter at the creamery. There were no complaints of mould on the butter or packages, which may be due to the cooler weather which prevailed during the past season, or, as it is hoped, to greater care in the selection and preparation of packages. There were very few complaints of "streaky" or "mottled" butter, due to the imperfect admixture of the salt with the butter. The adoption to an increased extent of packages of uniform dimensions called forth strong expressions of approval on the part of the judges, who intimated the hope that in future closer attention to details will be given by the managers in order that the improvement in this respect manifested during the year may be continued. Some of the judges, however, referred in strong terms to the flavouring of the exterior of the butter by the wood, and strongly urged the general adoption of paraffin waxing of all packages to remedy this defect, it being noticed that the butter in packages properly prepared in this respect was free from the taint. As the cost and labour incurred in preparing the boxes in this way is infinitesimal compared with the depreciation in value of the produce packed in untreated boxes, it is hoped that managers will make the practice of paraffin-waxing boxes general. The advice of the Instructor in Dairying should be sought in the matter.

With a view to finding an alternative wood which would not flavour the exterior of the butter the Department obtained a number of boxes constructed of a timber which was variously described as "whitewood," "cottonwood," "whitewood, otherwise poplar." The boxes were filled with butter at a number of creameries, and then called up with the other exhibits to one of the Surprise Butter Competitions for examination by the judges. The latter reported that "with an odd exception, in which the flavour imparted to the butter was almost imperceptible, the surface of the butter was entirely free from any taint of the wood, showing a very decided improvement over the other packages in this respect, excepting those which had been coated with paraffin wax." The boxes were retained for a further period of a month, and were again examined, when the surface of the butter was found to have no appreciable flavour of the wood. Although singularly free from resin, the wood contained traces of this objectionable matter, indicating that it was fir or pine of some variety, and when submitted to an expert he described the wood as—St. John's "spruce" or "whitewood" in a well seasoned condition. The wood was also rather knotty and very roughly planed. Managers have thus the alternative of paraffin-waxing boxes constructed of the wood in general use at present or of purchasing boxes constructed of timber which will not impart a taint to the surface of the butter.

When the butter was stripped the parchment came off in a perfectly clean manner in many cases, but in others a quantity of butter adhered to the parchment, making the block of butter unsightly and involving some loss. This fault is due to lack of care in preparing the package

or the parchment before filling, and may be avoided by placing the parchment in a saturated solution of boiling brine overnight, and by scalding the package over a steam jet till hot, and then treating the interior with paraffin wax or salt "slush," the excess of the salt being merely brushed and not rinsed off. The thin coating of paraffin wax, which should not be perceptible, or the small quantity of salt left on the surface of the wood tends to prevent the moisture evaporating from the surface of the butter, thus keeping the parchment paper damp and preventing it drying and adhering to the butter. The attention of the butter-makers should be directed to this point in order that the defect may be remedied.

V.—LIST OF TECHNICAL SCHOOLS IN WHICH INSTRUCTION IS GIVEN IN ONE OR MORE OF THE SUBJECTS OF EXAMINATION FOR THE DEPARTMENT'S CREAMERY MANAGERS' CERTIFICATES.

The following list is published for the information of creamery students desiring to obtain Instruction in the subjects specified therein. It is, however, to be understood that the classes at the undermentioned schools are not framed to meet the requirements of creamery students in regard to the syllabus set forth in this pamphlet. At the same time the classes will in all cases be found useful for creamery managers.

ARMAGH MUNICIPAL TECHNICAL SCHOOL. Subjects taught.—Book-keeping, Business Methods, Commercial Law, Economics, Mechanics.

BALLSBRIDGE, DUBLIN, TECHNICAL SCHOOL. Subject taught.—Book-keeping.

BALLYMENA MUNICIPAL TECHNICAL SCHOOL. Subjects taught.—Book-keeping, Commercial Correspondence, Elementary Science, Experimental Mechanics, Mechanical Engineering.

BANBRIDGE TECHNICAL SCHOOL. Subjects taught.—Elementary Science, Chemistry, Book-keeping.

BANDON TECHNICAL CLASSES. Subject taught.—Book-keeping.

BALLYMONEY TECHNICAL SCHOOL. Subjects taught.—Elementary Science, Book-keeping, Chemistry.

BANGOR TECHNICAL SCHOOL. Subjects taught.—Book-keeping, Chemistry.

BELFAST MUNICIPAL TECHNICAL INSTITUTE. Subjects taught.—Theoretical Mechanics, Practical Mechanics, Physics, Chemistry, Steam, Book-keeping and Business Methods, Commercial English, Commercial Geography, Commercial Law.

BIRR TECHNICAL SCHOOL. Subjects taught.—Book-keeping, Commercial Correspondence, Office Routine, Business Methods, Economics.

BLACKROCK, DUBLIN, TECHNICAL SCHOOL. Subjects taught.—Book-keeping, Commercial Correspondence, Elementary Science, Chemistry, Machine Construction.

- BRAY TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Office Work.
- BUTTEVANT TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Business Methods.
- CARLOW TECHNICAL SCHOOL.** Subject taught.—Commercial Correspondence.
- CARRICKFERGUS TECHNICAL SCHOOL.** Subjects taught.—Book-keeping and Business Methods, Commercial Correspondence.
- CHARLEVILLE TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Business Methods.
- CLONAKILTY TECHNICAL SCHOOL.** Subject taught.—Chemistry.
- CLONMEL TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Experimental Mechanical Science, Business Methods, Commercial Correspondence, Mechanical Engineering.
- COLERAINE TECHNICAL SCHOOL.** Subjects taught.—Experimental Science, Physics, Book-keeping.
- COOKSTOWN TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Business Methods, Elementary Science.
- CORK: CRAWFORD MUNICIPAL TECHNICAL INSTITUTE.** Subjects taught.—Practical Mechanics, Physics, Chemistry, Steam, Agricultural Science.
- DROGHEDA MUNICIPAL TECHNICAL SCHOOLS.** Subjects taught.—Book-keeping, Applied Mechanics, Theoretical Mechanics, Physics, Chemistry, Machine Construction, Steam.
- DUNDALK MUNICIPAL TECHNICAL SCHOOLS.** Subjects taught.—Book-keeping, Applied Mechanics, Theoretical Mechanics, Physics, Chemistry, Steam, Machine Construction.
- CITY OF DUBLIN TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Business Methods, Theoretical Mechanics, Applied Mechanics, Physics, Chemistry, Steam, Machine Construction.
- DUNGANNON TECHNICAL CLASSES.** Subjects taught.—Book-keeping, Business Methods, Physics, Chemistry.
- ENNISKILLEN TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Business Methods.
- FERMOY TECHNICAL CLASSES.** Subjects taught.—Book-keeping, Business Methods.
- CITY OF GALWAY TECHNICAL INSTITUTE.** Subjects taught.—Book-keeping, Commercial Correspondence, Theoretical Mechanics, Physics, Chemistry.
- HOLYWOOD TECHNICAL SCHOOL.** Subjects taught.—Elementary Science, Book-keeping, Chemistry.
- KILKENNY TECHNICAL SCHOOLS.** Subjects taught.—Book-keeping, Chemistry, Applied Mechanics, Machine Construction, Steam.
- KINGSTOWN MUNICIPAL TECHNICAL SCHOOLS.** Subjects taught.—Book-keeping, Business Methods and Official Routine, Theoretical Mechanics, Physics, Elementary Science.
- KINSALE TECHNICAL SCHOOL.** Subject taught.—Chemistry.
- LARNE TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Elementary Science, Physics, Chemistry.
- LIMERICK MUNICIPAL SCIENCE AND ART AND TECHNICAL SCHOOLS.** Subjects taught.—Elementary Science, Practical Mechanics, Physics, Chemistry, Steam, Book-keeping.
- LONDONDERRY MUNICIPAL TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Commercial English, Elementary Science, Physics, Mechanics, Steam Engines.

- LURGAN MUNICIPAL TECHNICAL SCHOOLS.** Subjects taught.—Book-keeping, Elementary Science, Physics, Steam.
- MALLOW TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Office Work.
- MARYBOROUGH TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Business Methods, Office Routine.
- MITCHELSTOWN TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Office Work.
- MULLINGAR TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Business Methods.
- NAAS TECHNICAL SCHOOL.** Subject taught.—Commercial Correspondence.
- NAVAN TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Business Methods, Official Routine.
- NEW ROSS TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Commercial Correspondence.
- NEWRY MUNICIPAL TECHNICAL SCHOOL.** Subjects taught.—Book-keeping and Business Routine, Commercial Geography, Commercial Law, Economics, Banking and Currency, Elementary Science, Mechanics, Physics, Chemistry.
- NEWTOWARDS MUNICIPAL TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Mechanics.
- OMAGH TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Business Methods, Theoretical Mechanics.
- PORTADOWN TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Elementary Science, Mechanics, Chemistry, Commercial Correspondence.
- QUEENSTOWN TECHNICAL SCHOOL.** Subjects taught.—Practical Mechanics, Physics, Steam, Mechanical Engineering.
- RATHMINES SCHOOL OF COMMERCE.** Subjects taught.—Book-keeping, Business Methods, Commercial Correspondence.
- RINGASKIDDY TECHNICAL SCHOOL.** Subject taught.—Applied Mechanics.
- RINGSEND, DUBLIN, TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Elementary Science, Applied Mechanics, Steam, Chemistry.
- ROSCREA TECHNICAL SCHOOL.** Subjects taught.—Chemistry, Elementary Physics.
- SLIGO MUNICIPAL TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Business Methods.
- STRABANE TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Business Methods, Elementary Science.
- TIPPERARY TECHNICAL CLASSES (CHRISTIAN BROTHERS' SCHOOLS).** Subjects taught.—Book-keeping, Business Methods.
- TRALEE CENTRAL TECHNICAL SCHOOL.** Subjects taught.—Practical Mechanics, Book-keeping, Commercial Correspondence.
- TULLAMORE TECHNICAL SCHOOL.** Subjects taught.—Commercial Training, Business Methods.
- WARRENPOINT MUNICIPAL TECHNICAL SCHOOL.** Subjects taught.—Book-keeping, Business Routine.
- WATERFORD CENTRAL TECHNICAL INSTITUTE.** Subjects taught.—Applied Mechanics, Physics, Chemistry, Book-keeping, and other Commercial Subjects.

WEXFORD MUNICIPAL TECHNICAL SCHOOL. Subjects taught.—Book-keeping, Applied Mechanics, Theoretical Mechanics, Chemistry.

WICKLOW TECHNICAL SCHOOL. Subjects taught.—Commercial Correspondence, Machine Construction.

VI.—COPIES OF FORMS OF CERTIFICATE AWARDED TO SUCCESSFUL CANDIDATES AT THE EXAMINATION FOR CREAMERY MANAGERS' CERTIFICATES.

I.

CREAMERY MANAGERS' CERTIFICATE.

(COPY.)

DEPARTMENT OF AGRICULTURE AND TECHNICAL INSTRUCTION
FOR IRELAND.

CREAMERY MANAGERS' CERTIFICATE.

Awarded.

to—————on the results of the Examination held in 19——, and in consideration of his having managed the—————Creamery to the satisfaction of the Department during the year 19——.

This Certificate is renewable annually on the Conditions prescribed by the Department's Scheme for Improvement in the Management of Creameries.

[Department's
Seal.]

(Signed), T. P. GILL, Secretary.

—————19——.

II.

PROVISIONAL CERTIFICATE.

(COPY.)

No.——
DEPARTMENT OF AGRICULTURE AND TECHNICAL INSTRUCTION
FOR IRELAND.

EXAMINATION FOR CREAMERY MANAGERS' CERTIFICATES.

PROVISIONAL CERTIFICATE.

This is to certify that—————, of—————, having been successful at the Examination held in 19——, will be entitled to obtain the Department's Creamery Manager's Certificate upon showing that he has since managed for at least one whole Season, to the satisfaction of the Department, a Creamery registered under the Department's Scheme for Improvement in the Management of Creameries.*

T. P. GILL, Secretary.

Upper Merrion Street, Dublin,

Prepd.—————19——.

Exd.—————

* The term "Creamery" does not include auxiliaries where milk is separated and the cream sent elsewhere to be made into butter.

VII.—LIST OF HOLDERS OF THE DEPARTMENT'S CREAMERY MANAGERS' CERTIFICATES, WHOSE CERTIFICATES HAVE BEEN RENEWED IN 1908.

- CAMPBELL, J. F., Tassagh Co-operative Agricultural and Dairy Society's (Ltd.) Creamery. Certificate awarded in 1907, renewed in 1908.
- CUSACK, WILLIAM, Abington Creamery (Co-operative Wholesale Society, Ltd.). Certificate awarded in 1906, renewed in 1907, 1908.
- FENNESSY, PATRICK, Herbertstown Co-operative Agricultural and Dairy Society's (Ltd.) Creamery. Certificate awarded in 1907, renewed in 1908.
- HEGARTY, DENIS, Cork Co-operative Creameries Federation's (Ltd.) Creamery. Certificate awarded in 1905, renewed in 1906, 1907, 1908.
- KEATING, E. L., Ballycanew Co-operative Agricultural and Dairy Society's (Ltd.) Creamery. Certificate awarded in 1906, renewed in 1907, 1908.
- LYON, JAMES, Ballyrashane Co-operative Agricultural and Dairy Society's (Ltd.) Creamery. Certificate awarded in 1904, renewed in 1905, 1906, 1907, 1908.
- MCDERMOTT, JOHN, Drumquin Creamery. Certificate awarded in 1904, renewed in 1905, 1906, 1907, 1908.
- MCGOWAN, PATRICK, Inver Co-operative Agricultural and Dairy Society's (Ltd.) Creamery. Certificate awarded in 1907, renewed in 1908.
- MURPHY, RICHARD, Knockavardagh and Moyglass Co-operative Creamery and Butter Factory Company's (Ltd.) Creamery. Certificate awarded in 1906, renewed in 1907, 1908.
- O'CONNELL, JOHN, Brosna Co-operative Agricultural and Dairy Society's (Ltd.) Creamery. Certificate awarded in 1906, renewed in 1907, 1908.
- SEMPLE, EDWARD C., Ballinamore Co-operative Agricultural and Dairy Society's (Ltd.) Creamery. Certificate awarded in 1905, renewed in 1906, 1908.

VIII.—LIST OF SUCCESSFUL CANDIDATES AT THE EXAMINATIONS, HELD DURING THE YEARS 1904-7 INCLUSIVE, FOR THE DEPARTMENT'S CREAMERY MANAGER'S CERTIFICATE.

The candidates whose names are prefixed by an asterisk are at present holders of the Department's Creamery Manager's Certificate, having managed during 1907 a Registered Creamery to the satisfaction of the Department. (See Regulations, page 517).

Alcorn, Armer, 1904; *Campbell, James F., 1904; Clifford, William P., 1906; Condon, Patrick P., 1907; *Cusack, William, 1906; *Fennessy, Patrick, 1907; Garstin, William Fortescue Colborne, 1905; Gleeson, Thomas M., 1904; Greason, Robert, 1907; *Hegarty, Denis, 1905; Hegarty, Jeremiah, 1905; *Keating, Edmund L., 1906; *Lyon, James, 1904; Lyons, Joseph, 1907;

M'Cluskey, Thomas, 1904; *M'Dermott, John, 1904; M'Donagh, John, 1905; *M'Gowan, Patrick, 1904; M'Menamin, Patrick, 1904; Murphy, James, 1905; *Murphy, Richard, 1906; O'Brien, Frederick, 1904; O'Callaghan, Timothy, 1906; *O'Connell, John, 1905; O'Connell, Maurice, 1904; O'Regan, Timothy, 1905; *Semple, Edward Charles, 1905; Sheehan, John, 1904; Spearman, Andrew H., 1904; Sullivan, Patrick, 1907; Ward, Maurice, 1904.

DEPARTMENT OF AGRICULTURE AND TECHNICAL INSTRUCTION FOR IRELAND.

IX.—REGISTER OF CREAMERIES AND AUXILIARIES—1907-8.

As a result of the inspection of creameries and auxiliaries from which applications were received in 1907 for Registration under the Department's scheme for improvement in the management of creameries, the following have been placed on the Department's Register for 1907-8:—

Registered Creameries—1907-8.

NOTE.—Creameries in this list denoted by an asterisk merit special commendation.

- ABBEYDORNEY Co-operative Dairy Society's (Ltd.) Creamery, Abbeydorney, co. Kerry. *Manager*, T. O'DONOVAN. *President*, G. F. TRENCH, J.P., Abbeylands, Ardfert.
- ABINGTON Creamery (Co-operative Wholesale Society, Ltd.), Barrington's Bridge, co. Limerick. *Manager*, WILLIAM CUSACK. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.
- ACHONRY Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Ballymote, co. Sligo. *Manager*, P. P. CONDON. *President*, Rev. B. QUINN, P.P., Lavagh, Ballymote.
- AGHADOWEY Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Drumcroon, Coleraine, co. Londonderry. *Manager*, J. J. O'KEEFFE, *President*, H. S. MORRISON, M.D., Bellvue, Blackhill, Coleraine.
- AHOUGHILL Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Ballymena, co. Antrim. *Manager*, J. JOHNSTON. *President*, R. LOKE, M.D., J.P., Ahoghill, Ballymena.
- ANGLO-IRISH Condensed Milk Company's (Ltd.) Creamery, Midleton, co. Cork. *Manager*, R. H. WILKINSON. *General Manager*, R. H. WILKINSON, Mill-road, Midleton.
- ARDAGH Co-operative Dairy Society's (Ltd.) Creamery, Ardagh, co. Limerick. *Manager*, J. MAGNER. *President*, T. J. AMBROSE, Dunganville, Ardagh.
- BAILIEBORO' Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Bailieboro', co. Cavan. *Manager*, PATRICK M'CARTHY. *President*, THOMAS M. FARRELLY, D.C., Main-street, Bailieboro', co. Cavan.

- BALLINAHINCH** Creamery (Co-operative Wholesale Society, Ltd.), Newport, co. Tipperary. *Manager*, WM. F. O'BRIEN. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.
- BALLINAMORE** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Ballinamore, co. Leitrim. *Manager*, E. C. SEMPLE. *President*, Rev. D. M'BREEN, P.P., Ballinamore, co. Leitrim.
- BALLINARD** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Ballinard, Shronell, co. Tipperary. *Manager*, J. SHEAHAN. *President*, Mrs. A. COOPER CHADWICK, Ballinard House, Shronell, co. Tipperary.
- BALLINFULL** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Ballinfull, co. Sligo. *Manager*, P. O'RIORDAN. *President*, Sir J. GORE-BOOTH, Lissadell, Sligo.
- ***BALLINTRILICK** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Clikoney, co. Sligo. *Manager*, T. F. HUNT. *President*, Sir J. GORE-BOOTH, Lissadell, co. Sligo.
- BALLYBRICKEN** Creamery (Co-operative Wholesale Society, Ltd.), Caherelly, Kilmallock, co. Limerick. *Manager*, M. J. HARNETT. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.
- ***BALLYCANEW** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Ballycanew, Gorey, co. Wexford. *Manager*, EDMUND L. KEATING. *President*, C. M. DOYNE, D.L., Wells, Gorey.
- BALLYDUAG** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Ballyduag, Thurles. *Manager*, P. CROWLEY. *President*, J. D. COOKE, J.P., Brownstown House, Loughmore, Templemore.
- BALLYHALE** Co-operative Dairy Society's (Ltd.) Creamery, Knocktopher, co. Kilkenny. *Manager*, C. M'CLUSKEY. *President*, Rev. T. BRENNAN, C.C., Ballyhale, Knocktopher.
- BALLYMOTE** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Ballymote, co. Sligo. *Manager*, J. J. COOKE. *President*, Very Rev. Canon LOFTUS, P.P., The Presbytery, Ballymote.
- ***BALLYRASHANE** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Ballyrashane, Coleraine. *Manager*, JAMES LYON. *President*, ROBT. D. PINKERTON, J.P., Ballaghmore, Ballymoney, co. Antrim.
- BELLEEK** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Belleek, co. Fermanagh. *Manager*, D. J. M'SWEENEY. *President*, C. J. TREDENNICK, J.P., Fortwilliam, Belleek.
- BELTRIM** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Gortin, co. Tyrone. *Manager*, T. WARNOCK. *President*, ROBT. C. LAUGHLIN, J.P., Gortin, co. Tyrone.
- BLACKABBEY** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Adare, co. Limerick. *Manager*, J. O'REGAN. *President*, P. FITZGERALD, J.P., Mondellibh, Adare, co. Limerick.

- BOYLE** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Boyle, co. Roscommon. *Manager*, D. AHERN. *President*, Major J. F. MURPHY, J.P., Abbey View, Boyle.
- BROSNA** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Brosna, co. Kerry. *Manager*, JOHN O'CONNELL. *President*, JERH. J. O'CONNOR, Knockafrecane, Brosna, co. Kerry.
- BUNKAY BRIDGE** Creamery Co-operative Wholesale Society, (Ltd.), Castleconnell, co. Limerick. *Manager*, H. McCULLAGH. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.
- CALLAN** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, West-street, Callan. *Manager*, TIMOTHY LUCEY. *President*, Rev. EDWARD O'KEEFFE, c.c., West-street, Callan.
- CASTLECAULFIELD** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Castlecaulfield, co. Tyrone. *Manager*, H. A. FERRY. *President*, C. W. NASH, Parkanaur, Castlecaulfield.
- CASTLECOR** Dairy Company's (Ltd.) Creamery, Castlecork, Kanturk, co. Cork. *Manager*, C. KELLY. *Chairman*,* W. N. BARRY, J.P., Castlecork House, Castlecork.
- CENTENARY** Co-operative Creamery Company's (Ltd.) Creamery, Ballyduff, Thurles, co. Tipperary. *Manager*, RICHARD WALSH. *Chairman*, ML. MAHER, Cooleiny, Moyne, Templemore, co. Tipperary.
- CLONES** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Clones, co. Monaghan. *Manager*, ALEX. B. HENRY. *President*, JAMES WEST, J.P., Scotsboro' House, Clones.
- CLOUNCAGH** Co-operative Dairy Society's (Ltd.) Creamery, Clouncagh, Ballingarry, co. Limerick. *Manager*, D. O'BRIEN. *President*, THOMAS TRACEY, Ballinarouga, Ballingarry, co. Limerick.
- COAGH** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Coagh, co. Tyrone. *Manager*, JAS. M'LAUGHLIN. *President*, ROBERT BURGESS, L.R.C.P. & S. (EDIN.), Coagh, co. Tyrone.
- COLLOONEY** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Collooney, co. Sligo. *Manager*, T. DE LACEY. *President*, Major C. K. O'HARA, H.M.L., Annaghmore, Collooney, co. Sligo.
- CORK** Co-operative Creameries Federation (Ltd.) Creamery, 6 and 7 Union-quay, Cork. *Manager*, D. HEGARTY. *President*, ... P. J. MURPHY, Castleview, Macroom.
- CUTTEEN** Creamery (Co-operative Wholesale Society, Ltd.) Monard, Tipperary. *Manager*, D. K. NOONAN. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.
- DERRYGONNELLY** Co-operative Dairy Society's (Ltd.) Creamery, Derrygonnelly, co. Fermanagh. *Manager*, E. J. MCBRIEN. *President*, Rev. P. HACKETT, c.c., Derrygonnelly.
- DEVON ROAD** Creamery (Co-operative Wholesale Society, Ltd.), Templeglantine, co. Limerick. *Manager*, M. O'MAHONY. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.

- DICKSGROVE Creamery (Co-operative Wholesale Society, Ltd.), Dicksgrove, Farranfore, co. Kerry. *Manager*, P. GREGGHEGAN. *General Manager*, J. TURNBULL, Pembroke-street, Tralee.
- DOONS Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Doone, Cookstown, co. Tyrone. *Manager*, J. WALKER. *President*, JAMES M'FARLANE, Doons, Cookstown.
- DROMAHAIR Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Dromahair, co. Leitrim. *Manager*, J. F. MULLANE. *President*, C. M'MORROW, D.C., Shranacraughy, Dromahair.
- DROMORE Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Dromore, co. Tyrone. *Manager*, J. J. HURLEY. *President*, WM. BUCHANAN, J.P., Aughlish, Dromore.
- DRUMBANE Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Drumbane, Thurles. *Manager*, H. P. RYAN. *President*, Very Rev. Canon CORCORAN, D.D., P.P., Drumbane, Thurles.
- DRUMHOLM Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Bridgetown, Donegal. *Manager*, P. PAGNUM. *President*, J. V. COLLINS, M.D., Laghey, co. Donegal.
- DRUMQUIN Creamery, Drumquin, co. Tyrone. *Manager*, JOHN M'DERMOTT. *Proprietor*, Rev. T. L. F. STACK, B.D., Lower Langford Rectory, Drumquin.
- DUNEANE Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Randalstown, co. Antrim. *Manager*, T. S. WILSON. *President*, ANDREW WILSON, Aughacarnaghan, Toomebridge, co. Antrim.
- EFFIN Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Newpark, Kilmallock, co. Limerick. *Manager*, E. O'LOUGHLIN. *President*, Rev. W. J. HIGGINS, P.P., Effin, Kilmallock.
- ERNE Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Kesh, co. Fermanagh. *Manager*, D. A. BEGGS. *President*, G. ARCHDALE, J.P., Drumard House, Kesh.
- FEALE BRIDGE Creamery (Co-operative Wholesale Society Ltd.), Abbeyfeale, co. Limerick. *Manager*, T. J. O'CONNOR. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.
- FENNOR Co-operative Dairy Society's (Ltd.) Creamery, Rathbeg, Urlingford, co. Kilkenny. *Manager*, J. CAMPION, *President*, JOHN RYAN, Fennor House, Urlingford, co. Kilkenny.
- FINN VALLEY Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Cross-roads, Killygordon, co. Donegal. *Manager*, M. COMMANE. *President*, Capt. JOHN RIKY, J.P., Mount Hall, Killygordon.
- FIVEMILETOWN and BROOKEBOROUGH Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Fivemiletown, co. Tyrone. *Manager*, PETER BENNOCH. *President*, H. DE F. MONTGOMERY, D.L., Blessingbourne, Fivemiletown.
- *GLENMORE Co-operative Dairy Society's (Ltd.) Creamery, Glenmore, Waterford. *Manager*, J. P. O'DONOVAN. *President*, Rev. T. PHELAN, P.P., Glenmore, Waterford.

- GLENWILLIAM** Co-operative Dairy Society's (Ltd.) Creamery, Ballingarry, co. Limerick. *Manager*, TIMOTHY MULLINS. *President*, T. D. ATKINSON, D.L., Glenwilliam Castle, Ballingarry.
- GRANAGH** Co-operative Dairy Society's (Ltd.) Creamery, Ballingarry, co. Limerick. *Manager*, RICHARD CHAWKE. *President*, DANIEL HEDERMAN, Ballyneale Ballingarry.
- GRANARD** Co-operative Dairy Society's (Ltd.) Creamery, Granard, co. Longford. *Manager*, JOHN CAWLEY. *President*, Ven. Archdeacon SMITH, P.P., Parochial House, Granard.
- GRANTSTOWN** Creamery (Co-operative Wholesale Society (Ltd.)), Grantstown, Tipperary. *Manager*, JOHN O'DWYER. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.
- GREENANE** Creamery (Co-operative Wholesale Society, Ltd.), Glastrigan, Borrisoleigh, co. Tipperary. *Manager*, J. J. KENNEDY. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.
- GREENCASTLE** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Greencastle, Newtownstewart, co. Tyrone. *Manager*, MICHAEL MORRIS. *President*, Rev. M. M'GEOWN, P.P., Greencastle, Newtownstewart, co. Tyrone.
- GREYBRIDGE** Creamery (Co-operative Wholesale Society, Ltd.), Meanus, Kilmallock, co. Limerick. *Manager*, MICHAEL POWER. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.
- HERBERTSTOWN** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Knocklong, co. Limerick. *Manager*, PATRICK FENNESSY. *President*, Very Rev. A. F. Canon SCULLY, P.P., Hospital, Knocklong, co. Limerick.
- HOLLYFORD** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Hollyford, Tipperary. *Manager*, JOHN MORRISSEY. *President*, MICHAEL STAPLETON, Piperhill, Hollyford, Tipperary.
- INVER** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Inver, co. Donegal. *Manager*, PATRICK M'GOWAN. *President*, Very Rev. E. MAGUIRE, D.D., Letterkenny.
- IRVINESTOWN** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Irvinestown, co. Fermanagh. *Manager*, WILLIAM R. IRWIN. *President*, EDWARD ARCHDALE, D.L., Castle Archdale, Irvinestown.
- KILCOMMON** Creamery (Co-operative Wholesale Society, Ltd.), Kilcommon, Thurles, co. Tipperary. *Manager*, JAMES C. DOHERTY. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.
- KILLASNETT** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Lurganboy, Manorhamilton, co. Leitrim. *Manager*, EDWARD O'CALLAGHAN. *President*, Rev. P. O'REILLY, P.P., Killasnett, Manorhamilton.
- KILLEN** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Killen, Castlederg, co. Tyrone. *Manager*, W. J. BEGGS. *President*, JOHN THOMPSON, Ganvaghan, Castlederg.
- KILLETER** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Killeter, Castlederg, co. Tyrone. *Manager*, W. BLAIE. *President*, C. CLARKE, J.P., Aughayarren, Castlederg.

- KILLUMNEY** Co-operative Creamery, Ltd., Ovens, co. Cork. *Manager*, T. C. HURLEY. *Chairman*, P. O'CONNELL, Killumney, Ovens.
- KILMACOW** Co-operative Dairy Society's (Ltd.) Creamery, Kilmacow, co. Kilkenny. *Manager*, R. WALSH. *President*, W. WALSH, Dangan, Kilmacow.
- KILMACTRANNY** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Ballyfarnon, Carrick-on-Shannon. *Manager*, P. J. GOLDEN. *President*, Rev. Dr. WAGNER, The Rectory, Kilmacranny, Carrick-on-Shannon.
- KILNALECK** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Kilnaleck, co. Cavan. *Manager*, C. E. COSTELLO. *President*, P. M'GENNIS, Kilnaleck, co. Cavan.
- ***KILTOGHERT** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Carrick-on-Shannon, co. Leitrim. *Manager*, MARTIN BEIRNE. *President*, Rev. M. NANGLE, c.c., Gowel, Kilclare, co. Leitrim.
- KILVILCARRIS** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Drom, Templemore, co. Tipperary. *Manager*, M. CASS. *President*, B. ROE, Graigue, Bush, Templemore.
- KINAWLEY** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Kinawley, Belturbet, co. Fermanagh. *Manager*, P. M'MANUS. *President*, G. W. WINSLOW, J.P., Mount Prospect, Derrylin, Belturbet.
- KNOCKAVARDAGH and MOYGLASS** (co. Tipperary) Co-operative Creamery and Butter Factory Company's (Ltd.) Creamery, Killenaule, Thurles. *Manager*, RICHARD MURPHY. *Chairman*, Rev. RICHARD FENNELLY, Castletown, Moyne, Templemore.
- LECKPATRICK** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Artigarvan, Strabane, co. Tyrone. *Manager*, THOS. H. QUINN. *President*, JOHN C. BOYD, M.B., Lifford, Strabane.
- LIMAVADY** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Limavady, co. Londonderry. *Manager*, WM ASHCROFT. *President*, S. M. MACRORY, J.P., Ardmore and Newton Mills, Limavady.
- LISCARROLL** Co-operative Dairy Society's (Ltd.) Creamery, Lis-carroll, Buttevant. *Manager*, SAMUEL LOMBARD. *President*, Rev. E. P. M'SWENEY, P.P., Churchtown, co. Cork.
- LISSARDA** Co-operative Dairy Society's (Ltd.) Creamery, Lissarda, co. Cork. *Manager*, T. HARTNETT. *President* E. NEVILLE, J.P., Ballytransna House, Lissarda.
- LIXNAW** Creamery (Co-operative Wholesale Society, Ltd.), Lix-naw, co. Kerry. *Manager*, JOHN O'LEARY. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.
- LONGFORD** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Longford. *Manager*, THOS. M'LAUGHLIN. *President*, Rev. WM. MURRAY, P.P., Lanesboro', co. Longford.
- LOUGHBRICKLAND** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Loughbrickland, co. Down. *Manager*, ROBERT HYDE. *President*, Rev. J. B. LUSK, The Manse, Glasker, Loughbrickland.

- MITCHELSTOWN** Creamery (Newmarket Dairy Co.), Mitchelstown, co. Cork. *Manager*, J. FITZPATRICK. *General Manager*, T. HURLEY, Newmarket, co. Cork.
- MONAGEA** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Newcastle West, co. Limerick. *Manager*, D. O'CONNOR. *President*, Rev. E. CLIFFORD, P.P., Monagea, Newcastle West.
- MONEYMORE** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Moneymore, co. Londonderry. *Manager*, W. J. ANDERSON. *President*, HENRY BYRNE, Moneymore, co. Londonderry.
- NEWCASTLE WEST** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Newcastle West, co. Limerick. *Manager*, WILLIAM KING. *President*, R. CURLING, The Castle, Newcastle West.
- NEWMARKET** Creamery (Newmarket Dairy Co., Ltd.), Newmarket, co. Cork. *Manager*, T. DENNEHY. *Chairman*, A. O'SHAUGHNESSY, 3, Alexandra-place, St. Luke's, Cork.
- OMAGH** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Omagh, co. Tyrone. *Manager*, J. DONALD. *President*, JOHN G. R. PORTER, J.P., Alexandra House, Omagh.
- PEOPLE'S** Creamery Co.'s (Ltd.) Creamery, Knockaderry, Newcastle West. *Manager*, J. MACKESSY. *Chairman*, Rev. J. O'SHAUGHNESSY, P.P., Clouncagh, Ballingarry.
- POMEROY** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Pomeroy, co. Tyrone. *Manager*, JAMES GRANT. *President*, Col. R. T. G. LOWRY, D.L., Pomeroy House, Pomeroy.
- PORTGLENONE** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Portglenone, co. Antrim. *Manager*, WILLIAM WHARTON. *President*, J. B. STEWART, M.D., Portglenone, co. Antrim.
- ***RAMELTON** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Ramelton, co. Donegal. *Manager*, JAS. J. KELLY. *President*, S. DAVIDSON, D.C., Ardnaree, Ramelton, co. Donegal.
- RATHKENNY** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Rathkenny, Carncoagh, co. Antrim. *Manager*, JAMES GREER. *President*, J. M'CAY, M.D., Clough, co. Antrim.
- SARSFIELD** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Templebraden, Pallasgreen, co. Limerick. *Manager*, M. O'KEEFFE. *President*, Rev. T. O'DWYER, ADM., Templebraden, Pallasgreen.
- ***SCOTTISH** Co-operative Wholesale Society's (Ltd.) Creamery, Enniskillen, co. Fermanagh. *Manager*, OWEN CORRIGAN. *General Manager*, W. R. WHYTE, Thistle Bank House, Enniskillen.
- SHANERAGH** Co-operative Agricultural and Dairy Society's (Ltd.) Creamery, Shaneragh, Dromore, Tyrone. *Manager*, C. M'CARTHY. *President*, Rev. Canon W. H. SCOTT, Brookfield, Clanabogan, Omagh.

- SMERLA BRIDGE Creamery** (Co-operative Wholesale Society, Ltd.), Smerla Bridge, Listowel, co. Kerry. *Manager*, WALTER E. LESLIE. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.
- SPAMOUNT Co-operative Agricultural and Dairy Society's (Ltd.) Creamery**, Spamount, Castlederg, co. Tyrone. *Manager*, DAVID HICKEY. *President*, Rev. A. LEITCH, Drumclaph Rectory, Castlederg.
- SPINK Co-operative Agricultural and Dairy Society's (Ltd.) Creamery**, Booleybeg, Spink, Abbeyleix, Queen's Co. *Manager*, J. DALY. *President*, Rev. J. HARRIS, P.P., Ballinakill, Abbeyleix.
- SPRINGFIELD Co-operative Agricultural and Dairy Society's (Ltd.) Creamery**, Enniskillen, co. Fermanagh. *Manager*, ROBERT G. MARSHALL. *President*, C. BRACKIN, The Graan, Enniskillen.
- TAMNASKENNY Co-operative Agricultural and Dairy Society's (Ltd.) Creamery**, Cookstown, co. Tyrone. *Manager*, J. CORR. *President*, G. GIBSON, Tattykeel, Cookstown.
- TASSAGH Co-operative Agricultural and Dairy Society's (Ltd.) Creamery**, Tassagh, Armagh. *Manager*, J. F. CAMPBELL. *President*, Rev. M. QUINN, C.C., Ballymacnab, Tassagh, Armagh.
- URNEY Co-operative Agricultural and Dairy Society's (Ltd.) Creamery**, Urney, co. Tyrone. *Manager*, H. J. M'DEVITT. *President*, J. HOLMES, J.P., Ballybogan, Lifford.

REGISTERED AUXILIARIES—1907-8.

- ARDBARRON Auxiliary** (Spamount Co-operative Agricultural and Dairy Society, Ltd.), Clare, Castlederg, co. Tyrone. *Manager*, J. TURNER. *President*, Rev. A. LEITCH, Drumclaph Rectory, Castlederg.
- ARMOY Auxiliary** (Ballyrashane Co-operative Agricultural and Dairy Society, Ltd.), Armoyn, co. Antrim. *Manager*, J. LYON. *President*, R. D. PINKERTON, J.P., Ballaghmore, Ballymoney.
- BALLINLEA Auxiliary** (Ballyrashane Co-operative Agricultural and Dairy Society, Ltd.), Ballinlea, Ballycastle, co. Antrim. *Manager*, J. LYON. *President*, R. D. PINKERTON, J.P., Ballaghmore, Ballymoney.
- BALLINURE Auxiliary** (Knockavardagh and Moyglass Co-operative Creamery and Butter Factory Co., Ltd.), Ballinure, Thurles, co. Tipperary. *Manager*, J. POWER. *Chairman*, Rev. R. FENNELLY, Castletown, Moyne, Templemore.
- *BALLYARTON Co-operative Agricultural and Dairy Society's (Ltd.) Auxiliary**, Killaloo, co. Derry. *Manager*, ALEXANDER MITCHELL. *President*, DAVID CRAIG, J.P., Oak Lodge, Londonderry.
- BALLYDOUGH Auxiliary** (Co-operative Wholesale Society, Ltd.), Milestone, Thurles. *Manager*, M. BERKERY. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.

- BALLYLANDERS** Auxiliary (Golden Bein Dairy Co., Ltd.), Ballylanders, Knocklong, co. Limerick. *Manager*, J. FLYNN. *Managing Director*, J. H. CAGNEY, The Priory, Kilfinane.
- BALLYMACQUIN** Auxiliary (Co-operative Wholesale Society, Ltd.), Ardfert, co. Kerry. *Manager*, M. MULVIHILL. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.
- ***BELNALECK** Auxiliary (Scottish Co-operative Wholesale Society, Ltd.), Belnaleck, Enniskillen. *Manager*, GLOVER ABERCROMBIE. *General Manager*, W. R. WHYTE, Thistle Bank House, Enniskillen.
- BILBOA** Co-operative Agricultural and Dairy Society's, Ltd., Auxiliary, Bilboa, Cappamore, co. Limerick. *Manager*, P. RYAN. *President*, Rev. J. NOLAN, c.c., Cappamore.
- ***BLACKLION** Auxiliary (Scottish Co-operative Wholesale Society, Ltd.), Blacklion, co. Cavan. *Manager*, JAMES MURPHY. *General Manager*, W. R. WHYTE, Thistle Bank House, Enniskillen.
- BOHO** Co-operative Agricultural and Dairy Society's (Ltd.) Auxiliary, Boho, Enniskillen. *Manager*, J. M. KEANEY. *President*, C. BRACKIN, The Graan, Enniskillen.
- ***BRAID** Co-operative Agricultural and Dairy Society's (Ltd.) Auxiliary, Broughshane, co. Antrim. *Manager* J. C. M'MASTER. *President*, Rev. ALEX. SLOAN, The Manse, Buckna, Broughshane, co. Antrim.
- BREEDOGUE** Auxiliary (Boyle Co-operative Agricultural and Dairy Society, Ltd.), Kingsland, Boyle, co. Roscommon. *Manager*, E. JONES. *President*, Major J. F. MURPHY, J.P., Abbey View, Boyle.
- ***BRUCKLESS** Co-operative Agricultural and Dairy Society's (Ltd.) Auxiliary, Bruckless, co. Donegal. *Manager*, P. BARRY. *President*, Rev. JOHN M'NULTY, c.c., Bruckless, co. Donegal.
- CAHIRCONLISH** Auxiliary (Co-operative Wholesale Society, Ltd.), Cahirconlish, Pallasgreen, co. Limerick. *Manager*, W. P. MANAHAN. *General Manager*, W. L. STOKES, J.P., Mulgrave street, Limerick.
- CARNDONAGH** Co-operative Agricultural and Dairy Society's (Ltd.) Auxiliary, Carndonagh, co. Donegal. *Manager*, W. E. KNOX. *President*, Rev. JOHN DOHERTY, Adm., Bridge Cottage, Carndonagh, co. Donegal.
- CARROWCRORY** Auxiliary (Collooney Co-operative Agricultural and Dairy Society, Ltd.), Carrowcroy, Ballinafad, Boyle, co. Sligo. *Manager*, M. NERNEY. *President*, Major C. K. O'HARA, Annaghmore, Collooney.
- CASTLEDAWSON** Co-operative Agricultural and Dairy Society's Ltd., Auxiliary, Castledawson, co. Londonderry. *Manager* W. LENNOX. *President*, H. E. MANN, Drumlamph House, Castledawson.
- ***CLOONLOO** Auxiliary (Boyle Co-operative Agricultural and Dairy Society, Ltd.), Cloonloo, Boyle, co. Roscommon. *Manager*, W. SHEERIN. *President*, Major J. F. MURPHY, J.P., Abbey View, Boyle.
- CLOUGHMILLS** Co-operative Dairy Society's' Ltd., Auxiliary, Cloughmills, Belfast, co. Antrim. *Manager*, A. BULLER. *President*, R. F. CRAWFORD, Larchfield, Cloughmills, Belfast.

- CLOVERHILL** Auxiliary (Clones Co-operative Agricultural and Dairy Society, Ltd.), Cloverhill, Drum, co. Monaghan. *Manager*, J. H. JORDAN. *President*, J. WEST, J.P., Scotsboro' House, Clones.
- CONVOY** Auxiliary (Finn Valley Co-operative Agricultural and Dairy Society, Ltd.), Convoys, co. Donegal. *Manager*, W. WRAY. *President*, W. M'CLURE, Gobnascale, Convoys, co. Donegal.
- ***COPANY** Auxiliary (Drumholm Co-operative Agricultural and Dairy Society, Ltd.), Laghey, co. Donegal. *Manager*, H. COLLUM. *President*, J. V. COLLINS, M.D., L.R.C.S.I., Laghey, co. Donegal.
- CREEVELEA** Co-operative Dairy Society's Ltd., Auxiliary, Creevelea, Drumkeeran, co. Leitrim. *Manager*, WILLIAM GAFFNEY. *Acting Chairman*, JAS. TIERNAN, Lonaugh, Drumkeeran, co. Leitrim.
- CURGLASSON** Auxiliary (Killyman Co-operative Agricultural and Dairy Society, Ltd.), Curglasson, Stewartstown, co. Tyrone. *Manager*, W. MCINTYRE. *President*, W. JOHNSTON, Curglasson, Stewartstown.
- CURRANS** Auxiliary (Co-operative Wholesale Society, Ltd.), Currans, Farranfore, co. Kerry. *Manager*, P. D. CASEY. *General Manager*, JAMES TURNBULL, Pembroke-street, Tralee.
- DONALONG** Co-operative Agricultural and Dairy Society's (Ltd.) Auxiliary, Bready, Strabane. *Manager*, J. GRAHAM. *President*, Rev. J. CONNELL, The Manse, Bready.
- DROMKEEN** Co-operative Agricultural and Dairy Society's (Ltd.) Auxiliary, Garrynagoord, Pallasgreen, co. Limerick. *Manager*, W. J. DEE. *President*, Rev. J. POWER, P.P., Kiltelly, Pallasgreen, co. Limerick.
- FANE VALLEY** Co-operative Agricultural and Dairy Society's, Ltd., Auxiliary, Altnamackin, Castleblayney, co. Armagh. *Manager*, R. GREACEN. *President*, G. BLACKWOOD, Ballyna-vea, Altnamackin, Castleblayney.
- FECARRY** Auxiliary (Omagh Co-operative Agricultural and Dairy Society, Ltd.), Mountfield, Omagh. *Manager*, JOHN DALY. *President*, ANDW. M'FARLAND, J.P., Fecarry House, Mountfield, Omagh.
- FINVOY** Auxiliary (Ballyrashane Co-operative Agricultural and Dairy Society, Ltd.), Ballymoney, co. Antrim. *Manager*, J. LYON. *President*, R. D. PINKERTON, J.P., Ballaghmore Ballymoney, co. Antrim.
- FIVEMILETOWN and BROOKEBOROUGH** Auxiliary (Fivemiletown and Brookeborough Co-operative Agricultural and Dairy Society, Ltd.), Brookeborough, co. Fermanagh. *Manager*, R. J. NEELY. *President*, H. DE F. MONTGOMERY, D.L., Blessingbourne, Fivemiletown.
- ***FLORENCECOURT** Auxiliary (Scottish Co-operative Wholesale Society, Ltd.), Florencécourt, Enniskillen. *Manager*, A. ABERCROMBIE. *General Manager*, W. R. WHITE, Thistle Bank House, Enniskillen.

- ***GARDINER'S Cross Auxiliary** (Scottish Co-operative Wholesale Society, Ltd.), Cornafanog, Lisbellaw. *Manager*, W. ROSS MAGEE. *General Manager*, W. R. WHYTE, Thistle Bank House, Enniskillen.
- GARRYDUFF Co-operative Agricultural and Dairy Society's Ltd.**, Auxiliary, Garryduff, Newcastle West, co. Limerick. *Manager*, E. LOOBY. *President*, P. WRIGHT, Glenagown, Newcastle West.
- GLANWORTH Auxiliary** (Newmarket Dairy Co., Ltd.), Glanworth, co. Cork. *Manager*, J. ROCHE. *General Manager*, T. HURLEY, Newmarket, co. Cork.
- GLENFARNE Auxiliary** (Killasnett Co-operative Agricultural and Dairy Society, Ltd.), Lisnagrough, Manorhamilton, co. Leitrim. *Manager*, O. MURPHY. *President*, Rev. P. O'REILLY, P.P., Killasnett, Manorhamilton.
- GLENFARNE Auxiliary** (Scottish Co-operative Wholesale Society, Ltd.), Glenfarne, co. Leitrim. *Manager*, D. SHEEHAN. *General Manager* W. R. WHYTE, Thistle Bank House, Enniskillen.
- ***GLENFINN Co-operative Agricultural and Dairy Society's (Ltd.)** Auxiliary, Welshtown, co. Donegal. *Manager*, E. J. SCANLON. *President*, WILLIAM H. H. DONALDSON, J.P., Glenafton House, Welshtown, co. Donegal.
- GOLA Auxiliary** (Scottish Co-operative Wholesale Society, Ltd.), Lisbellaw, co. Fermanagh. *Manager*, PATK. O'SULLIVAN. *General Manager*, W. R. WHYTE, Thistle Bank House, Enniskillen.
- GROVE Auxiliary** (Aghadowey Co-operative Agricultural and Dairy Society, Ltd.), Grove, Garvagh, co. Londonderry. *Manager*, WM. McALEESE. *President*, H. S. MORRISON, M.D., Bellvue, Blackhill, Coleraine.
- HARRISTOWN Co-operative Agricultural and Dairy Society's Ltd.**, Auxiliary, Harristown, Piltown, co. Kilkenny. *Manager*, J. O'SHEA. *President*, E. W. BRISCOE, Harristown, Piltown.
- ***KILBARRON Co-operative Agricultural and Dairy Society's (Ltd.)** Auxiliary, Cashelard, Cavangarden, co. Donegal. *Manager*, JOHN CURNEEN. *President*, JOHN GREENE, Lurgan, Cavangarden.
- KILBEHENNY Auxiliary** (Newmarket Dairy Co., Ltd.), Kilbehenny, Mitchelstown, co. Cork. *Manager*, J. W. WYNTER. *General Manager*, T. HURLEY, Newmarket, co. Cork.
- KILFLYNN Auxiliary** (Abbeydorney Co-operative Dairy Society, Ltd.), Kilflynn, co. Kerry. *Manager*, T. CROWLEY. *President*, G. F. TRENCH, J.P., Abbeylands, Ardfert.
- KILLEEN Auxiliary** (Co-operative Wholesale Society, Ltd.), Killeen, Nenagh, co. Tipperary. *Manager*, D. C. HARNETT. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.
- KILLEN Auxiliary** (Killen Co-operative Agricultural and Dairy Society, Ltd.), Killen, Churchtown, Castlederg, co. Tyrone. *Manager*, J. M'LOUGHLIN. *President*, J. THOMPSON, Ganvaghan, Castlederg.
- KILLOSCULLY Auxiliary** (Co-operative Wholesale Society, Ltd.), Newport, Tipperary. *Manager*, W. BOURKE. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.

- KILRAUGHTS** Auxiliary (Ballyrashane Co-operative Agricultural and Dairy Society, Ltd.), Kilraughts, Ballymoney. *Manager*, J. LYON. *President*, R. D. PINKERTON, J.P., Ballaghmore, Ballymoney.
- KNOCKLOUGHRIM** Auxiliary (Aghadowey Co-operative Agricultural and Dairy Society, Ltd.), Knockloughrim, Maghera, co. Londonderry. *Manager*, W. SMYTH. *President*, H. S. MORRISON, M.D., Bellvue, Blackhill, Coleraine.
- KYLE COMMONS** Auxiliary (Newmarket Dairy Co., Ltd.), Kyle Commons, New Birmingham, Thurles. *Manager*, P. CONWAY. *Chairman*, A. O'SHAUGHNESSY, 3, Alexandra-place, St. Lukes, Cork.
- LETTERBREEN** Auxiliary (Springfield Co-operative Agricultural and Dairy Society, Ltd.), Letterbreen, Enniskillen. *Manager*, S. ELLIOTT. *President*, C. BRACKIN, The Graan, Enniskillen.
- LITTLETON** Auxiliary (Centenary Co-operative Creamery Co., Ltd.), Littleton, Thurles. *Manager*, R. QUINN. *Chairman*, M. MAHER, Cooleiny, Moyne, Templemore.
- LOUGHMORE** Auxiliary (Centenary Co-operative Creamery Co., Ltd.), Loughmore, Templemore, co. Tipperary. *Manager*, J. PHELAN. *Chairman*, M. MAHER, Cooleiny, Moyne, Templemore.
- MOUNTJOY** Co-operative Agricultural and Dairy Society's, Ltd., Auxiliary, Mountjoy, Omagh, co. Tyrone. *Manager*, J. M'CANNY. *President*, A. HAMILTON, Lisliminaghan, Mountjoy, Omagh.
- MOYCRAG** Auxiliary (Ballyrashane Co-operative Agricultural and Dairy Society, Ltd.), Mosside, co. Antrim. *Manager*, J. LYON. *President*, R. D. PINKERTON, J.P., Ballaghmore, Ballymoney.
- MOYNE HALL** Co-operative Creamery, Ltd., Auxiliary, Cavan. *Manager*, P. BRADY. *Chairman*, J. SMITH, Crubany House, Cavan.
- NEW MILLS** Auxiliary (Killyman Co-operative Agricultural and Dairy Society, Ltd.), Newmills, Dungannon, co. Tyrone. *Manager*, A. MORROW. *President*, R. SMITH, Moneyvign, Newmills, Dungannon.
- PALLAS** Auxiliary (Drumbane Co-operative Agricultural and Dairy Society Ltd.), Pallas, Borrisoleigh, co. Tipperary. *Manager*, W. RYAN. *President*, Rev. L. CORCORAN, Templebraden, Drumbane.
- PALLAS** Co-operative Agricultural and Dairy Society's (Ltd.) Auxiliary, Kilanerin, Gorey, co. Wexford. *Manager*, P. SULLIVAN. *President*, THOMAS WEBSTER, Great Grove, Hollyfort, Gorey.
- REAR CROSS** Auxiliary (Co-operative Wholesale Society Ltd.), Newport, co. Tipperary. *Manager*, W. REARDON. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.
- RAWDEERPARK** Auxiliary (Clones Co-operative Agricultural and Dairy Society, Ltd.), Deerpark, Newbliss, co. Monaghan. *Manager*, G. BAILIE. *President*, J. WEST, J.P., Scotsboro' House, Clones.
- ROSSLEA** Auxiliary (Clones Co-operative Agricultural and Dairy Society, Ltd.), Rosslea, co. Fermanagh. *Manager*, T. LEISTER. *President*, J. WEST, J.P., Scotsboro' House, Clones.

- S. BRIDGE Auxiliary (Scottish Co-operative Wholesale Society, Ltd.), Tempo, co. Fermanagh. *Manager*, ARTHUR FEE. *General Manager*, W. R. WHYTE, Thistle Bank House, Enniskillen.
- SESSIAGH O'NEILL Auxiliary (Finn Valley Co-operative Agricultural and Dairy Society, Ltd.), Ballybofey, co. Donegal. *Manager*, J. CARSON. *President*, Rev. T. O'DOHERTY, C.C., Naveny Villa, Ballybofey, co. Donegal.
- SPRINGFIELD Auxiliary (Newmarket Dairy Co., Ltd.), Kille-naule, co. Tipperary. *Manager*, J. HANRAHAN. *Chairman*, A. O'SHAUGHNESSY, 3, Alexandra-place, St. Luke's, Cork.
- TEMPLETUOHY Auxiliary (Centenary Co-operative Creamery Co., Ltd.), Templetuohy, Templemore, co. Tipperary. *Manager*, F. GEARON. *Chairman*, M. MAHER, Cooleiny, Moynes, Templemore.
- TOOR Auxiliary (Co-operative Wholesale Society, Ltd.), Duagh, co. Kerry. *Manager*, W. O'SULLIVAN. *General Manager*, W. L. STOKES, J.P., Mulgrave-street, Limerick.
- TULLYRAPP Auxiliary (Lagan Co-operative Agricultural and Dairy Society, Ltd.), Tullyrapp, Raphoe, co. Donegal. *Manager*, W. RUTHERFORD. *President*, S. MARSHALL, J.P., Sallybrook, Manor Cunningham.
- TYHOLLAND and MIDDLETOWN Co-operative Agricultural and Dairy Society's, Ltd., Auxiliary, Silverstream. *Manager*, J. MURRICANE. *President*, P. HUGHES, Killief, Silverstream, Monaghan.
- *VICTORIA BRIDGE Auxiliary (Omagh Co-operative Agricultural and Dairy Society, Ltd.), Victoria Bridge, Strabane, co. Tyrone. *Manager*, C. H. SHARKEY. *President*, G. KNOX, Sion Mills, Strabane, Tyrone.

II.—TECHNICAL INSTRUCTION.

FORM S. 41.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION-STREET, DUBLIN.

SUMMER COURSES OF INSTRUCTION FOR TEACHERS, 1908.

The Department will, during the summer, conduct short courses of instruction for teachers as under :—

A.—Courses beginning Tuesday, 7th July, and closing Friday, 31st July :—

- (1) In Experimental Science, in Laboratory Arts, and in Drawing and Modelling, for Teachers in Day Secondary Schools and in Day and Evening Science and Art Classes.

- (2) In Domestic Economy and in Manual Training (Woodwork) for Teachers in Day Secondary Schools.
- (3) In Limerick Lace-making, Crochet Work, Embroidery, Sprigging and Drawn Thread-work for Teachers of these Crafts.

B.—Courses beginning Tuesday, 4th August, and closing Saturday, 29th August :—

- (4) In Rural Economy.
- (5) In Manual Training (Metal Work), and in Building Construction, for Manual Instructors.
- (6) In Hygiene and Sick Nursing and in High-Class Cookery, for Domestic Economy Instructresses.

The Courses will be held in Dublin, Belfast, and Cork, but the centres will not be arranged until all applications have been received and considered.

Should the applications exceed the number for which it is proposed to provide accommodation, those applicants will be selected whose admission would appear most likely to prove beneficial. Applications from teachers who have attended short courses of instruction in previous years, and who have been giving instruction in the subjects of those courses during the present session, will have priority of claim for admission to advanced courses.

It is important that teachers should not apply unless they know that they will be able to attend, for much inconvenience, as well as injustice to others, may be entailed by applicants failing to take advantage of admission which may be granted. Failure to attend the course after the invitation has been accepted, will, except in the case of illness, be regarded as an abuse of the privilege; and any teacher failing in this respect will not be admitted to any future course.

Teachers who are selected for, and who attend the courses of instruction regularly and punctually at the specified hours, from the beginning to the end of the course, will be allowed a sum of £3 10s. towards their expenses while living at the centre; and those who travel more than twenty miles to the centre of instruction will be allowed, in addition, Third Class Railway Fare for one journey to and from between the railway station nearest their school and Dublin, Belfast, or Cork, as the case may be; no car fare or other travelling expenses will, however, be allowed. These allowances will in no case be made until after the conclusion of the courses.

The hours of attendance will be from 10 a.m. to 4 p.m. daily (with an interval of one hour for lunch), except on Saturdays, when the hours will be from 10 a.m. to 1 p.m. In addition, Teachers will be required in the evenings to write out notes, &c.

Teachers desiring to take advantage of these courses must fill up and return the appropriate form of application (*see below*) as early as convenient, but in any case so as to reach the Offices of the Department not later than the **31st March**.

N.B.—These Courses are open only to Teachers who are over eighteen years of age, and who are engaged (a) by Local Committees of Technical Instruction; or (b) in Schools receiving grants either directly from the Department or under the provisions of an approved local Scheme of Technical Instruction.

DETAILS OF THE COURSES.

I. (a.)—EXPERIMENTAL SCIENCE.

There may be twelve courses of instruction in Experimental Science.

Subjects :—First Year of the Preliminary Course ; Third and Fourth Year Courses in Physics, Chemistry, Mechanical Science, Botany, and Physiology and Hygiene, and a course in Geology.

These courses will not only cover the subject matter of the syllabuses of the Department's programme for Day Secondary Schools ; but will aim directly at bringing home to Teachers the intentions of the Department as expressed in the prefatory note thereto.

Provisional recognition to teach the subject of the course will be accorded to those Teachers who have punctually and regularly attended, and successfully done the class work, as testified by laboratory note books, and by any examination—written, *viva voce*, or practical—which it may be desirable to hold.

Application for admission to these courses must be made on Form S. 42.

(NOTE.—Summer Courses in the First Year Syllabus and in the Second Year Syllabus of the Preliminary Course will be conducted in alternate years.)

I. (b.)—LABORATORY ARTS.

This course of instruction will be designed specially for those teachers who have already successfully attended four Summer Courses in Experimental Science, and is primarily intended to give instruction such as will enable those in charge of laboratories to effect simple repairs to common apparatus, and to design and make new apparatus for lecture illustration, or other special purposes. It will also generally tend to increase the manipulative skill of the Science Teacher.

The Course will include practice in the working of wood, metal, and glass ; also instruction in the care and maintenance of tools used in such work. The properties of common materials used in apparatus making will be discussed, in order that teachers may be in a position to draw up correct specifications of special apparatus. Practical work in lantern slide making, and in the optical projection of apparatus and experiments, will also be undertaken.

The lectures associated with the Course will deal with diagram design and construction ; the use of the lantern for demonstration work ; the design of laboratories and equipment, &c.

Teachers who have punctually and regularly attended, and in respect of whom the Department receive satisfactory reports, will receive a certificate of satisfactory attendance. Satisfactory attendance at the course in Laboratory Arts will be accepted in lieu of attendance at a fifth Summer Course under the conditions of Section I. (2) of Circular 23.

Application for admission to this Course must be made on Form S. 42.

I. (c).—DRAWING AND MODELLING.

This Course is intended primarily for the further training of teachers who hold the Irish Secondary Teachers' Drawing Certificate, or higher certificates. The Department will, however, admit a limited number of teachers in Secondary Schools and Art students who wish to become teachers of drawing, but who do not at present possess qualifications as such recognised by the Department. Applicants must show that they have received some previous training in Art subjects, and preference will be given to those who have already obtained some of the successes required for the Irish Secondary Teachers' Drawing Certificate.

It is not the intention of the Department to grant temporary recognition as Teachers of Drawing in Day Secondary Schools as the result of attendance at this Course.

Application for admission to this Course must be made on Form S. 147.

II. (a).—DOMESTIC ECONOMY.

This course will be arranged for Teachers who have already obtained provisional recognition to give instruction in the First and Second Year Syllabuses of the Preliminary Course of Experimental Science, and who desire to obtain recognition as teachers of Domestic Economy in Day Secondary Schools. The course of instruction will include Cookery, the elements of Physiology and Hygiene, and Needlework.

Recognition to teach Domestic Economy in Day Secondary Schools during the Session 1908-9 will be given to those teachers who have punctually and regularly attended, and successfully done the class work, as testified by note books and by any examination—written, *viva voce*, or practical—which it may be desirable to hold. Teachers who successfully attend three Summer Courses in Domestic Economy, under the conditions referred to above, and who teach this subject for two complete sessions to the satisfaction of the Department's Inspectors, will be recognised as qualified to give instruction, in Day Secondary Schools, in the Preliminary Course of the Department's Programme of Experimental Science and in the Syllabuses of Domestic Economy. (See Circular 25.)

Application for admission to this Course must be made on Form S. 42.

II. (b).—MANUAL INSTRUCTION (WOODWORK).

The course of Manual work will include instruction in Drawing in addition to practical instruction in the use of Woodworking tools, and will provide for the further training of Teachers who at present teach these subjects in Day Secondary Schools, or who will be engaged as instructors during the forthcoming session. Examinations will be held at the conclusion of the course, and Teachers who succeed in passing these examinations will, for the present, be accepted as qualified to give instruction in the subject under the Department's Regulations for Day Secondary Schools, subject to the conditions of Circular 24.

Application for admission to this Course must be made on Form S. 42.

III.—COURSE OF INSTRUCTION FOR TEACHERS OF LIMERICK LACE-MAKING, CROCHET WORK, EMBROIDERY, SPRIGGING, AND DRAWN THREAD-WORK.

The object of the present course is to improve existing kinds of work, and not to introduce new forms. The instruction will be confined to Limerick Lace-making, Crochet Work (Clones and Raised), Embroidery, Sprigging, and Drawn Thread-Work.

The lessons on each of these subjects will include instruction in technique, the use of suitable materials, the preparation of working tracings, and of drawings from rubbings of crochet. In the case of those capable of profiting by such form of instruction, practice in Design will also be afforded. Special instruction will be given in the artistic arrangements of traditional details ordinarily used by crochet workers. Exercises will be given in which the actual units will be employed, and drawings will be made from such arrangements as prove satisfactory : these exercises will form an important part of the present course.

Certificates will be awarded at the close of the Course to those who have attended regularly and worked well, and whose work is of a sufficiently high standard, as shown by the specimens produced during the class-lessons, and by any tests of a written or practical character which it may be considered advisable to apply.

Application for admission to this course must be made on Form S 140.

IV.—RURAL ECONOMY.

A course of instruction in Elementary Science suitable for rural schools will be conducted during the month of August. The course is intended primarily for teachers in Technical Schools who are eligible to conduct classes in Elementary Science for teachers in National Schools, under the conditions of the Department's Circular Letter No. 27.

Examinations, written and practical, will be held at the close of the course, and those teachers of Technical Schools who have punctually and regularly attended the course and pass these examinations will be recognised as qualified to give instruction in the subject to Teachers' Classes conducted under the conditions of Circular 27 and Section VI. of the Department's Programme for Technical Schools and Science and Art Schools and Classes.

As far as the accommodation will permit, the Department are prepared to admit to the course National School teachers who are recognised by the Commissioners of National Education as eligible to give instruction in the Syllabuses of Object Lessons and Elementary Experimental Science of the Programme for National Schools.

The object of the course is to enable teachers, already qualified in the manner referred to, to illustrate the application of scientific principles to the study and explanation of the natural facts of rural life. The instruction will be largely practical in character, and will involve outdoor work. It will deal with such phenomena as the surface forms of the country ; the weather ; the origin and nature of rocks and of soils ; the structure, growth and conditions for healthy existence of plants ; the distribution of types of vegetation ; the structure and habits of common animals, and the making of a " Nature Calendar."

Application for admission to this course must be made on Form S. 42.

V. (a).—MANUAL TRAINING (METAL WORK).

This course is intended for the further training of Manual Instructors who are at present under engagement to Local Committees of Technical Instruction. Examinations will be held at the close of the course, and Instructors who attend satisfactorily and pass these examinations will be granted provisional certificates of recognition as teachers of Manual Training (Metal Work), under the conditions of Circular 24.

Application for admission to this Course must be made on Form S. 147.

V. (b).—BUILDING CONSTRUCTION.

This course is also intended for the further training of Manual Instructors. The syllabus of instruction will be divided under three main heads—(a) Construction and Materials, (b) Mechanics of Construction, and (c) Sanitation, Ventilation and Heating; and the work done during the course will be, as far as possible, practical in character. The students will be arranged in sections according to their previous knowledge of the subject.

A certificate of satisfactory attendance and progress will be issued to those who are favourably reported upon by the Instructor-in-charge; but it is not the intention of the Department to issue Teachers' Certificates on the results of the course. Instructors attending the course will be expected to sit for the Board of Education's Local Examination in Building Construction and Drawing, to be held in May, 1909.

Applications for admission to this Course must be made on Form S. 147.

VI. (a).—HYGIENE AND SICK NURSING.

The course is intended for Teachers of Domestic Economy at present engaged under Local Authorities.

The object of the course is to provide facilities for these teachers to obtain further practical knowledge of the laws of health, and of home nursing, so as to enable them to introduce into their courses simple and well-directed instruction, for which it is felt there is great need.

The course will include only as much Human Physiology as is necessary for the proper understanding of the laws of health, and will deal largely with rural and personal hygiene, and with the care of the young and of the sick in their own homes. Instruction in First Aid to the Injured will also form part of the course.

The instruction will include practical work, and an examination will be held at the close of the course.

Applications for admission to this course must be made on Form S. 146.

VI. (b).—HIGH CLASS COOKERY.

A course of instruction in High Class Cookery will be arranged for in order chiefly to meet the needs of Instructresses who may be required to give instruction in the subject under County Borough and Urban District Schemes.

Applications for admission to this course must be made on Form S. 146.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION-STREET, DUBLIN.

SUMMER COURSES OF INSTRUCTION TO MEMBERS OF
ENCLOSED RELIGIOUS ORDERS, 1908.

The Department will, during the months of July and August, conduct Summer Courses of Instruction for Teachers of Experimental Science, Drawing, and Domestic Economy.

In all cases in which the Department grant the services of expert Instructors, compliance with the following conditions will be required:—

(1.) That the Convent authorities provide accommodation, and all necessary apparatus and materials required for the Courses.

(2.) That arrangements will be made, as far as possible, for the admission of Teachers from other Convents, who may apply for a Course of Instruction at the centre.

(3.) That none but members of Religious Orders, who are actually engaged in teaching in Day Secondary Schools in receipt of grants from the Department, will be admitted.

(4.) That all expenses incurred by Teachers attending the courses shall be defrayed by the authorities of the Convents in which they teach.

The courses will, as a rule, begin on the 7th July and close on the 31st July; but, should these dates be not suitable, the Department will be prepared to consider applications for courses to begin on the 21st July or the 4th August.

The hours of attendance will be from 10 a.m. to 4 p.m. daily (with an interval of one hour for lunch), except on Saturdays, when the hours of attendance will be from 10 a.m. to 1 p.m. In addition, Teachers will be required in the evenings to write out notes, &c.

The Department are prepared to consider applications for alternative arrangements provided they allow of an equal period of teaching.

Teachers who wish to attend the courses must fill in Form S. 142, and forward it to the Department through the Superioress of the Convent at which it is desired that they should attend.

DETAILS OF THE COURSES.

Experimental Science.

The subjects of the courses of instruction will be:—First and Second Years of the Preliminary Course; Third and Fourth Year Courses in Physics, Chemistry, Botany, and Physiology and Hygiene.

These courses will not only cover the subject matter of the Syllabuses of the Department's programme for Day Secondary Schools, but will aim directly at bringing home to Teachers the intentions of the Department as expressed in the prefatory note thereto.

Provisional recognition to teach the subject of the course will be accorded to those Teachers who have punctually and regularly attended, and successfully done the class work, as testified by laboratory note books, and by any examination—written, *viva voce*, or practical—which it may be desirable to hold.

(NOTE.—Applications for courses in the First Year Syllabus and in the Second Year Syllabus of the Preliminary Course will be entertained only in alternate years.)

Drawing and Modelling.

This course is intended primarily for the further training of teachers who hold the Irish Secondary Teachers' Drawing Certificate, or higher certificates. The Department will, however, admit a limited number of Teachers who wish to become Teachers of Drawing, but who do not at present possess qualifications as such recognised by the Department. Applicants must show that they have received some previous training in Art Subjects, and preference will be given to those who have already obtained some of the successes required for the Irish Secondary Teachers' Drawing Certificate.

It is not the intention of the Department to grant temporary recognition as teachers of Drawing in Day Secondary Schools as the result of attendance at this course.

Domestic Economy.

This course will be arranged for Teachers who have already obtained provisional recognition to give instruction in the First and Second Year Syllabuses of the Preliminary Course of Experimental Science, and who desire to obtain recognition as teachers of Domestic Economy in Day Secondary Schools. The course of instruction will include Cookery, the elements of Physiology and Hygiene, and Needlework.

Recognition to teach Domestic Economy in Day Secondary Schools during the Session 1908-9 will be given to those Teachers who have punctually and regularly attended, and successfully done the class work, as testified by note books and by any examination—written, *viva voce*, or practical—which it may be desirable to hold. Teachers who successfully attend three summer courses in Domestic Economy, under the conditions referred to above, and who teach this subject for two complete sessions to the satisfaction of the Department's Inspectors, will be recognised as qualified to give instruction in Day Secondary Schools, in the Preliminary Course of the Department's Programme of Experimental Science and in the Syllabuses of Domestic Economy. (See Circular 25.)

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION STREET,

SIR,

DUBLIN, *February*, 1908.

The attention of the Department has from time to time been drawn to the necessity which exists in maritime towns in Ireland for the provision of instruction in Navigation, and they have, with a view to indicating to Technical Instruction Committees the nature of the course in this subject which it is thought might with advantage be established in suitable places, drawn up a syllabus of an elementary character. This syllabus is printed overleaf.

The Department desire, further, to direct attention to the fact that the increased rates of grants payable under the terms of their Regulations for Technical Schools and Science and Art Schools and Classes should considerably assist Committees in arranging for the establishment of classes in this important branch of instruction.

I am, SIR,

Your obedient Servant,

T. P. GILL, *Secretary*.

SUGGESTED SYLLABUS IN ELEMENTARY NAVIGATION.

FIGURE OF THE EARTH :—

Definitions of Equator ; Parallels of Latitude ; Meridians of Longitude ; Difference of Latitude ; Difference of Longitude.

TIME :—

Relation between Longitude and Local Time ; Method of finding times of High Water and Low Water at different places.

MARINEER'S COMPASS :—

Points of the Compass ; Connection between, and conversion of, points and degrees ; Variation and Deviation of the Compass ; Determination of the Compass bearing on the true bearing of a distant object.

LEEWAY :—

Method of correcting a course for leeway.

THE LOG-LINE, AND PATENT LOGS :—

Construction of, and method of using, the log-line and patent logs.

SOUNDING :—

Construction of, and method of using, the lead and line, and patent sounding machines.

CHARTS :—

Mercator's projection ; Explanation of the signs and abbreviations used on Charts ; The use of the parallel rulers and dividers ; Determination of a ship's position by cross-bearings and by soundings ; Th

use of leading lines when entering and leaving harbours, or approaching dangers ; The methods of marking the fairway in Channels
Methods of recognising entrances to harbours and coast lights.

SAILING :—

The difference between Parallel, Plane and Traverse Sailing, with exercises involving the solution of plane triangles ; Methods of determination of the ship's position by Dead Reckoning.

WEATHER :—

Weather signals and storm warnings ; The use of Barometer and Thermometer readings as weather indications.

Circular 51.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION STREET,

SIR, or MADAM,

DUBLIN, *March*, 1908.

I have to inform you that the Regulations for the conduct of the examinations in Blackboard Drawing of the Board of Education have been revised, and are no longer applicable to Ireland, and that as a success in this subject is not now required for higher certificates in Drawing or Art, other than the Irish Secondary Teachers' Drawing Certificate, the Department have decided not to make further arrangements for the holding of these examinations. They will, however, arrange for special examinations in Drawing on the Blackboard, for candidates for the Irish Secondary Teachers' Drawing Certificate, to be held at Dublin, Belfast, Cork, Londonderry, Limerick, Waterford, and Galway, during the months of October and November. The examinations in Elementary Modelling, which have previously been held in April, May, and June, will also in future be held during the months of October and November.

The tests in these subjects are provided only for candidates for the Irish Secondary Teachers' Drawing Certificate, and the Department will not be prepared to admit applicants who have not previously obtained at least three of the other successes required for that certificate.

Applications for admission to the examinations to be conducted in October and November, 1908, must be submitted not later than the 15th September, on Form S. 117 in the case of Elementary Modelling, and on Form S. 119 in the case of Drawing on the Blackboard. Copies of these forms may be obtained, after the 15th August, from the Offices of the Department.

The Department have not fixed any fee to be paid by candidates, but the Managers of the schools at which the examinations will be conducted will be at liberty to charge each applicant a fee not exceeding 2s. 6d.

I am,

Sir, or Madam,

Your obedient Servant,

T. P. GILL, *Secretary*.

Circular 52.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION STREET,

DUBLIN, *April, 1908.*

SIR,

The Department have for some time had under consideration the question of the canvassing of members of Committees by candidates for employment under schemes of Agriculture and Technical Instruction, and the Standing Council of the Irish Technical Instruction Association have urged upon them the undesirable nature of this feature in connection with the appointment of Instructors and other officers of Committees. The Department feel sure that all Committees will unite with them in desiring the discontinuance of a practice which can only militate against the efficiency of the work throughout the country.

It has been suggested that a clause should be inserted in advertisements issued in connection with appointments under local schemes, stating that canvassing by candidates will be regarded as a disqualification, and the Department would urge upon Committees the advisability of adopting, and, as far as is in their power, rendering effective, this method of dealing with the problem.

The Department will, as heretofore, be prepared to assist Committees in selecting the best candidates, by preparing a short list of those who have the necessary attainments, and, where the importance of the appointment justifies such a course, instructing one of their Inspectors to be present at the meeting of the Committee at which these selected candidates are interviewed, in order to afford information and advice.

I am, Sir,

Your obedient Servant,

T. P. GILL, *Secretary.*

Circular 53.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION-STREET,

DUBLIN, *April, 1908.*

SIR,

The Department desire to direct the attention of Technical Instruction Committees to the terms of Section II., paragraphs 1, 6 and 8, of the Regulations for Technical Schools and Science and Art Schools and Classes, in regard to the provision in Technical Schools of courses of study designed in consideration of local industrial conditions.

During an examination of the claims made by the Managers of Technical Schools for payment of grants under these Regulations, in respect of the instruction afforded in the academic year 1906-7, it has

appeared that in many cases the Department's intentions in connection with the question of approved courses have not been fully understood, and students have been permitted to attend classes in subjects which have little or no bearing upon the business, trade, or industry in which they are engaged. The Department have been obliged to refuse grants in cases of this kind, and, in order to save future disappointment on the part of Committees, they wish to state that they will not be prepared to pay grants on account of the attendances of pupils except at instruction in the subjects of organised courses which have been designed to meet the real requirements of localities, and which have received their express approval.

Each Technical Instruction Committee should, therefore, at a period considerably before the opening of the Session, prepare and submit a full statement of their proposed courses of study, so that these may, when approved by the Department, be inserted in the prospectus of the Technical School.

I am, Sir,

Your obedient Servant,

T. P. GILL,

Secretary.

Circular 54.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION-STREET,
DUBLIN, April, 1908.

SIR OR MADAM,

I have to enclose herewith a copy of the Department's Programme of Experimental Science, Drawing, Manual Instruction, and Domestic Economy for Day Secondary Schools for the session 1907-8, and to inform you that the regulations set forth in this publication will not be materially altered for the coming school session.

Attention is directed to the official calendar affixed to the Programme, from which it will be observed that if the Managers desire the above-named school to be admitted to the list of schools working for grants under the conditions of the regulations during the academic year 1908-9, application must be made by the 1st May next.

Copies of the form of application (S.44A.) may be obtained from the Offices of the Department.

I am, Sir or Madam,

Your obedient Servant,

T. P. GILL,

Secretary.

III.—SALE OF FOOD AND DRUGS.

No. 471—08.

DEPARTMENT OF AGRICULTURE AND TECHNICAL INSTRUCTION FOR IRELAND.

MEMORANDUM.

BUTTER AND MARGARINE ACT, 1907.

REGISTRATION OF BUTTER FACTORIES.

The above-cited Act, which came into operation on the 1st January, 1908, requires (Section 1) the registration of "Butter Factories," that is to say—*any premises on which by way of trade butter is blended, re-worked, or subjected to any other treatment, but not so as to cease to be butter.* Application for Certificate of Registration must be made by the owner or occupier of each butter factory to the proper local authority, *i.e.*, to the County Council or to the Town Council of the Borough, as the case may be, in which such butter factory is situate.

The Local Government Board for Ireland, by Order dated the 11th December, 1907, have directed that the following particulars shall be stated in each application for registration :—

- (a) The name and address of the owner or occupier carrying on business in such factory and making the application.
- (b) The situation of the factory.

Every application must be signed by the person making it, or in the case of an application by a joint stock company, by some person duly authorised to act on behalf of such company.

The Local Government Board, in the Order referred to, also prescribe the Form of Certificate of Registration to be issued by the Local Authority to the person whose application is in due form.

Failure to register any premises which come within the definition of butter factory as given above, renders the person in default liable to heavy penalty as provided for in the Butter and Margarine Act, 1907.

The Act prohibits the registration, as a butter factory, of premises which form part of or communicate, otherwise than by a public street or road, with premises where margarine, margarine cheese, or mixtures of butter with milk or cream are manufactured or dealt in wholesale.

This prohibition does not, however, apply to premises which on the 1st January, 1907, were being used as a butter factory and formed part of or communicated with premises which were then registered under the Sale of Food and Drugs Acts, *if and so long as this Department so directs.*

Each registration should forthwith be notified by the Local Authority to the Department.

Department of Agriculture and
Technical Instruction for Ireland,
Upper Merrion-street, Dublin.
January, 1908.

NOTES AND MEMORANDA.

A meeting of the Agricultural Board was held at the Office of the Department, Upper Merrion-street, Dublin, on Tuesday, the 28th January. The following **Meeting of the Agricultural Board.** were present :—Mr. T. W. Russell, M.P., Vice-President of the Department (in the chair);

Very Rev. Canon Daly, D.D.; Colonel Nugent T. Everard, H.M.L.; Sir Jesslyn Gore-Booth, Bart., D.L.; His Grace the Most Reverend John Healy, D.D., Lord Archbishop of Tuam; Mr. William M'Donald, J.P.; the Right Hon. Lord Monteagle, K.P., D.L.; Mr. H. de F. Montgomery, D.L.; Mr. P. J. O'Neill, J.P.; and Mr. Alexander Robb, J.P.

Mr. T. P. Gill, Secretary of the Department; Professor J. R. Campbell, Assistant Secretary in respect of Agriculture; Mr. W. G. S. Adams, M.A., Superintendent of the Statistics and Intelligence Branch; Mr. J. S. Gordon, B.Sc., Chief Agricultural Inspector; Mr. J. P. Walsh, Clerk in Charge of Accounts; Mr. J. D. Daly, M.A. (who acted as Secretary to the meeting); and Mr. J. V. Coyle, were also present.

The following minute with reference to the Irish Agricultural Organisation Society, was adopted :—

A letter from the Irish Agricultural Organisation Society was read, requesting a relaxation of the supervision at present exercised by the Department's officials over the entire expenditure of the Society. In connection therewith the Board considered the question of the recent correspondence in the *Freeman's Journal*, and articles which had appeared in other publications as well as speeches concerning the future policy of the Society.

After full consideration the Board decided that the impression which these letters, articles, and speeches had created, namely, the association of the Irish Agricultural Organisation Society with hostility to a political party and to certain trading interests, greatly increased the difficulty of the Department, already for some years very considerable, in helping the co-operative movement by means of a subsidy to this Society, and made it impossible for the Department in the interests of their Schemes throughout the country and in that of the Co-operative movement itself, to continue their present relations with the Irish Agricultural Organisation Society.

It was of primary importance that the Department should be above suspicion of being involved, directly or indirectly, in attacks upon any political party in or out of Parliament or upon any legitimate trading interest. The

same applies to the Agricultural Co-operative movement which the Department has been assisting, and which the Board concur with the Council of Agriculture in considering necessary for the well-being of Irish farmers. The Council while divided as to the method of assisting the movement by grants to the Irish Agricultural Organisation Society were unanimous in support of Agricultural co-operation itself. Happily the work of the Department is now regarded as non-contentious, and meets with no opposition from any party or class. It is of the greatest importance to preserve this character for it, and to keep it free from association with political controversy or propaganda in any form.

With this end in view the Board decided that the aid of the Department of Agricultural co-operation of a non-controversial character should henceforth be given directly, and that the arrangement of assisting the movement by means of a subsidy to the Irish Agricultural Organisation Society should cease. The relations which have hitherto existed between the Society and the Department should accordingly terminate as soon as practicable, and the Department's officials should no longer serve on the Committee of the Society or take any responsibility for its work.

In view, however, of the fact that the Society has entered into certain obligations to its staff consequent on the recent decision of the Board to render financial assistance for a limited period, it was decided to continue the full subsidy of the £3,000 for the remainder of the current year on condition that during that period the Society refrains from any action outside the scheme of work already approved, and that the sum is applied subject to the monthly audit of the Department.

Meanwhile, the Department should be prepared to give direct assistance for the organisation of agricultural co-operative societies in all the now well understood non-controversial forms.

A meeting of the Joint Committee appointed by the several Urban County Districts in the County of Dublin

The Board of under Section 10 (b) of the Agriculture and
Technical Instruction. Technical Instruction (Ireland) Act, 1899, was held on the 2nd April, at the Offices of the Department, Upper Merrion-street, Dublin, for the purpose of appointing a member on the Board of Technical Instruction in room of the late Mr. Thomas Edmondson. Mr. Richard W. Booth was appointed to fill the vacancy on the Board of Technical Instruction.

It appears from the Emigration Statistics Report (Cd. 3987-08) that the Emigrants who left Irish ports during
Emigration from the year 1907 numbered 39,562, or 9.0 per
Ireland in 1907. 1,000 of the estimated population of Ireland in the middle of the year, showing an increase of 3,644 as compared with the emigration in the year 1906. The number of males who emigrated

in 1907 was 21,506, or 1,863 more than in the year 1906, and the number of females 18,056, showing an increase of 1,781. It appears that the number of Emigrants (natives of Ireland) who left Ireland in 1906 is above that for the previous year, and above the average for the preceding five years by 2,502.

There were 39,082 natives of Ireland (or 8·9 per 1,000 of the estimated population), and 480 were persons belonging to other countries, among those who emigrated in the year 1907. When compared with the year 1906, the number of Emigrants, natives of Ireland, shows an increase of 3,738, but the number of persons belonging to other countries shows a decrease of 94.

Of the 39,082 natives of Ireland who left the country last year 5,711, or 5·0 per 1,000 of the population of the province in 1901, were from Leinster; 11,288, or 10·5 per 1,000 from Munster; 14,513, or 9·2 per 1,000 from Ulster; 7,570, or 11·7 per 1,000 from Connaught; the total number being equal to 8·8 per 1,000 of the population of Ireland in 1901.

As compared with 1906, in Leinster an increase of 632 is shown, in Munster an increase of 1,234, and in Ulster an increase of 2,182; but in Connaught there is a decrease of 310 Emigrants in 1907, in comparison with the number of Emigrants in 1906.

With regard to the destinations of the Emigrants—Natives of Ireland—it appears that 35,120, or 89·9 per cent. of the total, emigrated to the Colonies or to Foreign Countries; and 3,562, or 10·1 per cent., to Great Britain. The United States of America was the destination of 30,006, or 76·8 per cent. of the total number of Emigrants (Natives of Ireland) in 1907, in comparison with an average of 28,824, or 80·8 per cent. for the four preceding years. Emigration to Canada shows an increase of 892 in 1907, compared with 1906, the numbers being 4,296 in 1907, and 3,404 in 1906. The number of Emigrants to South Africa in 1907 was 226, as compared with 295 in 1906. The Emigrants to Australia numbered 365 in 1907, against 343 in 1906, 285 in 1905, 336 in 1904, 380 in 1903, 496 in 1902, 595 in 1901, 834 in 1900, 1,005 in 1899, 837 in 1898, 676 in 1897, 545 in 1896, 629 in 1895, 457 in 1894, 511 in 1893, 1,216 in 1892, 1,821 in 1891, 2,338 in 1890, 3,038 in 1889, 3,110 in 1888, and 3,798 in 1887. Emigrants to New Zealand numbered 143 in 1907, as against 105 in 1906. The 84 persons who went to "Other Countries" in the year 1907 include 75 returned as emigrating to South America (including 57 to the Argentine Republic, and 16 to Brazil), 5 to France, 2 to Ceylon, one to Portugal and one to Germany.

The Annual Report on the Grants made by the English Board of Agriculture and Fisheries in aid of Agricultural Grants for Education and Research for the Year ended Agricultural Education 31st March, 1907 (Cd. 3908—1908) has just in England. been issued.

Estimates submitted in last year's Report showed that between 30,000 and 40,000 persons annually receive agricultural instruction of some kind, and the Reports of the Board's Inspector showed that 1,116 attended courses at Agricultural institutions. This year the number attending these institutions was 1,221. While these figures are satisfactory, the number of students pursuing the longer courses offered by our Colleges is not so large as a few years ago promised to be the case, and it must be admitted that in spite of inducements in the form of scholarships given by County Councils, and of the improvement in the quality of the instruction offered, the English farmer does not show much anxiety to obtain systematic instruction in agriculture for his son. It is true that there has been of late years a gratifying change in the attitude of the farmer towards the teaching staff of agricultural institutions, but this attitude has not yet reached the point at which it affects the farmer's personal desire for education. Many farmers are now ready enough to admit, by their action on Education Committees, if not in so many words, that education is a good thing for their neighbours, but the Agricultural Colleges will not take the place they should until farmers are convinced that education is a good thing for themselves.

The special grants in aid of agricultural experiments and research amounted to £495 in 1906-7 as against £355 in the previous year. Unlike the annual grants to institutions which are given in aid of a general fund for the purpose of instruction in agriculture, these grants for experiments are paid for a specific object, either to institutions or to associations engaged in the investigation of agricultural problems. As the experiments come to an end, or change their character, the grants cease or alter in amount. In the year under report grants formerly made to the Aberdeen Agricultural Research Association and to the Association of British and Irish Millers were discontinued, and a grant to Cambridge University in respect of pasture experiment was reduced from £30 in 1905-6 to £20. On the other hand, the Board made a grant of £300 to Rothamsted Experimental Station to enable the Lawes Agricultural Trust to complete arrangements for conducting a series of experiments on Rotation of Crops, and also experiments upon Clover Sickness.

The Consular Report on the Trade of Bavaria (Cd. 3727-19-1907)

Agriculture in Bavaria. recently issued gives some interesting particulars regarding Bavarian Agriculture.

A general idea of the yields of the principal crops may be obtained from the following table :—

	Total Yield.		Area Cultivated in 1906.	Average Yield per Hectare.*	
	1905.	1906.		1905.	1906.
	Cwts.	Cwts.	Hectares.*	Cwts.	Cwts.
Wheat, ...	9,375,088	9,287,341	287,610	32	32
Barley, ...	10,837,954	11,681,082	353,997	31	33
Oats, ...	11,778,452	16,653,837	495,126	24	34
Rye, ...	18,402,082	16,228,426	566,796	32	29
Potatoes, ...	94,727,448	74,532,294	352,312	271	212

* $2\frac{1}{2}$ acres.

The Bavarian Government Department for Cattle Insurance, now in its tenth year of existence, dealt in 1906 with 79,000 owners of cattle to whom £90,703 was paid for compensation.

305,700 head of cattle were insured for £4,006,270. The Government grant of £2,000 per annum in aid of the **Horse and Cattle Insurance.** Horse Insurance Department was raised to £3,000 in 1906. In that year 30,140 owners of 71,612 horses insured the latter for the sum of £2,435,147 and received £64,511 in compensation for losses contained.

The dearth of agricultural labourers is becoming a great calamity to Bavarian landowners, especially to those in the **Migratory Agricultural Labourers.** neighbourhood of towns. Polish labourers, in some cases with their families, are now largely introduced for the summer months, as is done in the north of the Empire. The daily wages of these Poles range from 1s. 3d. to 1s. 6d., and their return fares, coming to about £2 10s., are also paid by their hirers. It would appear that even Bavarian agricultural labourers do not receive better daily wages than their foreign competitors; in Franconia, for instance, they amount to 1s. 6d. and 1s. 9d. per day, a woman earning from 1s. 2½d. to 1s. 5d. without board, work lasting from 12 to 13 hours per diem. For feeding a threshing machine a man earns from 1d. to 1½d. per hour, besides receiving some bread and cider in the afternoon. The breaking up of large estates and selling the arable land in small plots is also attributed to the scarcity

of agricultural labourers, and seems to be a lucrative business, since there are in Bavaria 735 agents employed in this trade. These agents were taxed to the amount of £10,180 on an aggregate income of £309,200 derived from their transactions.

Since 1899 an agricultural co-operative society has existed at Effel-

Agricultural Co-operative Society.

Effeltrich.

trich, a village of about 600 inhabitants, situated in Upper Franconia, just off the railway line between Erlangen and Bamberg. The district is famous for its system of cultivation, whereby plots, after having been planted several years with fruit trees, are given over for a period of 10 to 15 years to the growing of cereals, potatoes, and especially horse-radishes, a speciality of Effeltrich. Every inhabitant of that village has his nursery of trees; if he owns no land himself he goes shares with a landowner, who furnishes the land and the manure, whilst the other performs the necessary labour. The profits are equally divided between the two. The members of this society profit by the commercial experience of a secretary in matters of sales and export, and by the instruction of an expert.

The society consists now of 75 members, and deals with about 860 customers; in 1906 its profits amounted to £6,300, and some 65,000 young trees are sold per annum. The efforts of the society were rewarded with a silver medal at the Nuremberg Exhibition in 1906.

The flow of emigration from Hungary, which has been causing so much anxiety to the Government, has, in consequence of the financial crisis in the United

Hungarian Emigration.

States of America, been to a certain extent and for a time checked. Hungarian emigrants are returning in considerable numbers, while the reports received as to lack of employment in America are certainly deterring a good many would-be emigrants from seeking their fortunes abroad. The amnesty granted by the Emperor-King on the occasion of his recent jubilee to all those who, by leaving the country, had evaded military service and had thereby rendered themselves liable to punishment, has also contributed to the return of many Hungarians to their native land.

The number of emigrants in the first nine months of 1907 is estimated at about 162,000. The number of those who came back during the same period is put at 32,000.

The Government is doing all in its power to find immediate employment for all returning emigrants

The Consular Report on the trade of Belgium (Cd. 3727-1—1907)

recently issued, contains an interesting note on

Irish Trade with the trade between Ireland and Belgium. In
Belgium. regard to imports from Ireland, the total for

the half year amounts to £34,920. The principal item among them, flax, is, of course, the chief article of interest between this country and Ireland, amounting to £13,000; while machinery, fish, copper, minerals, and rubber, all show a fair value.

With respect to the exports for the half year, both the volume and value of Belgian goods sent to Ireland are largely in excess of those of the imports from the latter country. The total amounts to £772,800, of which flax accounts for £520,480, flax yarns for £126,680, and fabrics of flax, hemp and jute, £16,040; in addition, oakum, valued at £52,040, was exported to Ireland. Of the other principal exports, glass was valued at £13,080, and minerals consisting largely of cement, amounting to 10,821 tons, at £11,640.

In the same Report, the Vice-Consul at Ghent states, that prices of flax seed opened firm at the beginning of 1906,

Belgian Flax Seed. due to an unfavourable report of Indian crops, which gave 110,000 tons less than in 1905, and also the Argentine, which also furnished 130,000 tons less than in the preceding season. This enormous deficit, however, was filled by North America, which sent 200,000 tons to Europe

Imports by Ghent from Russia were good and amounted to about 12,000 tons for the mills. Through these causes prices fell off towards the end of the year, but there were few fluctuations in prices. The quality "extra pink" from Riga varied between 19s. 2d. and £1 0s. 2d. the sack of 220 lbs. c.i.f. Ghent. Owing to excessive imports in previous years only 30,000 sacks were imported by Ghent.

STATISTICAL TABLES

FISHERY STATISTICS—

STATEMENT of the Total QUANTITY and VALUE of the FISH returned compared with the

—	North Coast.				East Coast.			
	1908.		1907.		1908.		1907.	
	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.
	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
Brill, . . . . .	.	.	.	.	84	123	60	146
Soles, . . . . .	.	.	.	.	39	107	91	295
Turbot, . . . . .	.	.	.	.	23	71	51	229
Total Prime Fish, . . . . .	.	.	.	.	146	301	202	670
Cod,	154	113	245	154	912	798	1,238	993
Conger Eel,	4	3	3	2	433	278	273	233
Haddock,	537	215	405	202	460	507	523	634
Hake, . . . . .	.	.	.	.	317	387	367	598
Herrings,	17,795	7,203	9,674	4,312	984	176	2,764	753
Ling, . . . . .	.	.	.	.	419	290	505	452
Mackerel,	14	2	.	.	.	.	.	.
Plaice,	2	1	20	25	381	578	851	903
Ray or Skate,	10	3	6	2	452	130	267	201
Sprats, . . . . .	.	.	.	.	.	.	.	.
Whiting,	10	6	.	.	480	468	822	780
All other except Shell Fish,	86	40	3	3	457	316	1,096	992
Total,	18,612	7,596	10,356	4,700	5,441	4,229	9,788	7,159
SHELL FISH:—	No.		No.		No.		No.	
Crabs, . . . . .	.	.	.	.	.	.	.	.
Lobsters, . . . . .	.	.	.	.	401	14	263	13
Mussels,	Cwts.		Cwts.		Cwts.		Cwts.	
	.	.	.	.	909	26	1,301	34
Oysters,	No.		No.		No.		No.	
	.	.	.	.	11,498	21	8,630	20
Other Shell Fish,	Cwts.		Cwts.		Cwts.		Cwts.	
	.	.	.	.	63	47	168	90
Total, . . . . .	.	.	.	.	.	108	.	157
Total Value of Fish landed, . . . . .	.	7,686	.	4,700	.	4,337	.	7,316

NOTE.—The above figures are subject to

IRELAND.

as landed on the IRISH COASTS during the month of January, 1908,
corresponding period in 1907.

South Coast.				West Coast.				Total.			
1908.		1907.		1908.		1907.		1908.		1907.	
Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.
Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
1	3	.	.	.	.	5	10	85	126	65	166
11	47	20	78	61	175	46	167	111	329	157	540
.	.	1	2	31	136	15	72	54	207	67	303
12	50	21	80	92	311	66	249	250	662	289	999
51	39	37	48	571	312	49	27	1,688	1,262	1,559	1,222
.	.	10	5	294	164	40	17	731	415	326	257
136	63	29	41	1,249	654	2,991	682	2,382	1,439	3,948	1,559
.	.	.	.	24	27	5	2	341	414	372	600
6,775	1,229	840	307	2,124	829	1,404	511	27,678	9,437	14,682	5,883
.	.	23	14	265	130	150	87	684	420	678	653
2,109	851	7,468	2,375	3,264	1,847	12,234	5,941	5,337	2,700	19,702	8,316
85	84	155	175	838	661	216	199	1,306	1,324	1,242	1,302
.	.	35	8	133	42	76	27	595	175	374	239
.	.	50	8	.	.	.	.	.	.	50	8
12	5	53	28	966	446	840	514	1,468	925	1,715	1,272
120	64	134	67	145	106	103	65	808	526	2,236	1,127
9,300	2,385	8,855	3,156	9,965	5,529	13,174	8,321	43,318	19,729	47,173	23,336
No.		No.		No.		No.		No.		No.	
.
.	.	.	.	1,300	48	1,724	83	1,701	62	1,986	96
Cwts.		Cwts.		Cwts.		Cwts.		Cwts.		Cwts.	
.	.	.	.	302	25	804	49	1,211	51	2,005	83
No.		No.		No.		No.		No.		No.	
9,966	29	6,174	12	3,654	4	10,439	12	25,108	54	25,483	44
Cwts.		Cwts.		Cwts.		Cwts.		Cwts.		Cwts.	
439	87	541	89	944	185	828	153	1,451	319	1,537	332
.	116	.	101	.	262	.	297	.	486	.	555
.	2,501	.	3,257	.	5,791	.	8,618	.	20,215	.	23,891

correction in the Annual Returns.

FISHERY STATISTICS—

STATEMENT of the Total QUANTITY and VALUE of the FISH returned compared with the

	North Coast.				East Coast.			
	1908.		1907.		1908.		1907.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
Brill, . . . . .	.	.	.	.	40	58	49	95
Soles, . . . . .	.	.	.	.	21	68	66	216
Turbot, . . . . .	.	.	.	.	18	53	28	131
Total Prime Fish, . . . . .	.	.	.	.	79	179	143	442
Cod,	126	75	32	20	1,787	1,029	1,342	944
Conger Eel,	1	1	1	1	423	235	248	200
Haddock,	337	158	158	94	664	546	412	494
Hake, . . . . .	.	.	.	.	498	469	280	448
Herrings,	4,700	1,447	.	.	982	220	1,196	381
Ling,	2	1	.	.	559	241	395	354
Mackerel,	281	38	.	.	.	.	.	.
Plaice,	2	1	.	.	1,183	1,379	712	713
Ray or Skate,	11	3	3	1	491	128	280	181
Sprats, . . . . .	.	.	.	.	.	.	.	.
Whiting,	16	8	6	3	761	537	663	591
All other except Shell Fish,	53	35	10	4	694	394	2,280	1,120
Total,	5,529	1,767	210	123	8,126	5,347	7,931	5,868
SHELL FISH :—	No.	.	No.	.	No.	.	No.	.
Crabs, . . . . .	.	.	.	.	.	.	.	.
Lobsters, . . . . .	.	.	.	.	251	12	404	20
Mussels,	Cwts.	.	Cwts.	.	Cwts. 554	16	Cwts. 1,163	32
Oysters,	No.	.	No.	.	No. 16,788	25	No. 11,206	28
Other Shell Fish,	Cwts.	.	Cwts. 5	2	Cwts. 58	41	Cwts. 152	83
Total, . . . . .	.	.	.	2	.	94	.	163
Total Value of Fish landed, . . . . .	.	1,767	.	125	.	5,441	.	6,031

NOTE.—The above figures are subject to

IRELAND.

as landed on the IRISH COASTS during the month of February, 1908, as corresponding period in 1907.

South Coast.				West Coast.				Total.			
1908.		1907.		1908.		1907.		1908.		1907.	
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
2	4	.	.	.	.	23	48	42	62	72	143
16	73	35	170	55	339	127	642	92	480	228	1,028
1	2	1	3	18	71	33	105	37	126	62	239
19	79	36	173	78	410	183	795	171	668	362	1,410
59	39	13	15	804	326	459	233	2,776	1,529	1,846	1,212
.	.	.	.	105	33	129	52	534	269	378	253
78	72	199	95	1,805	780	796	489	2,884	1,556	1,565	1,172
.	.	.	.	3	2	71	58	501	471	351	506
274	56	215	62	185	54	959	324	6,141	1,777	2,370	767
92	52	1	1	483	258	620	316	1,136	552	1,016	671
902	353	445	194	994	255	2,273	927	2,177	646	2,718	1,121
151	142	200	184	515	434	355	492	1,851	1,956	1,267	1,389
.	.	27	5	254	48	371	86	756	179	661	253
.	.	108	16	.	.	.	.	.	.	108	16
62	18	177	43	482	245	1,214	669	1,321	798	2,060	1,306
142	61	177	76	97	46	401	160	986	536	2,868	1,360
779	872	1,598	864	5,800	2,961	7,831	4,581	21,234	10,937	17,570	11,436
No.	.	No.	.	No.	.	No.	.	No.	.	No.	.
71	6	22	2	988	42	2,046	79	1,810	59	2,472	101
Cwts.	.	Cwts.	.	Cwts.	90	Cwts.	5,037	Cwts.	644	Cwts.	6,260
No.	5,922	No.	6,804	No.	8,094	No.	31,616	No.	31,374	No.	49,636
Cwts.	568	Cwts.	476	Cwts.	722	Cwts.	1,024	Cwts.	1,348	Cwts.	1,657
.	121	.	113	.	225	.	671	.	440	.	949
.	998	.	977	.	3,176	.	5,252	.	11,377	.	12,385

correction in the Annual Returns.

FISHERY STATISTICS—

STATEMENT of the TOTAL QUANTITY and VALUE of the FISH returned as compared with the

	North Coast.				East Coast.			
	1908.		1907.		1908.		1907.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
Brill, . . . . .	.	.	.	.	23	41	40	83
Soles, . . . . .	.	.	.	.	13	47	37	170
Turbot, . . . . .	.	.	.	.	15	45	30	136
Total Prime Fish, . . .	.	.	.	.	51	133	107	389
Cod,	44	28	25	18	1,757	937	2,114	1,311
Conger Eel, . . . . .	.	.	.	.	624	330	317	247
Haddock,	268	127	116	56	581	540	470	593
Hake, . . . . .	.	.	.	.	505	408	353	567
Herrings, . . . . .	.	.	.	.	32	9	.	.
Ling, . . . . .	.	.	.	.	665	191	624	516
Mackerel, . . . . .	.	.	.	.	.	.	.	.
Plaice,	45	45	97	88	1,323	1,607	1,283	1,309
Ray or Skate,	23	9	4	2	913	196	372	183
Sprats, . . . . .	.	.	.	.	.	.	.	.
Whiting,	50	25	40	22	553	479	576	632
All other except Shell Fish, .	147	59	25	8	709	430	4,029	2,032
Total,	577	293	307	194	7,713	5,320	10,245	7,679
SHELL FISH:	No.		No.		No.		No.	
Crabs,	170	1	252	2	220	1	276	1
Lobsters,	45	2	34	2	891	33	718	44
Mussels,	Cwts.	.	Cwts.	.	Cwts.	12	Cwts.	23
Oysters,	No.	.	No.	.	No.	6	No.	34
Other Shell Fish,	Cwts.	.	Cwts.	.	Cwts.	59	Cwts.	104
Total, . . . . .	.	3	.	4	.	111	.	206
Total Value of Fish landed, .	.	296	.	198	.	5,431	.	7,885

NOTE.—The above figures are subject to

IRELAND.

landed on the IRISH COASTS during the Month of March, 1908, as corresponding period in 1907.

South Coast.				West Coast.				Total.			
1908.		1907.		1908.		1907.		1908.		1907.	
Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.
Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
1	1	.	.	38	46	23	54	62	88	63	137
26	124	34	171	375	2,017	305	1,283	414	2,218	376	1,621
5	18	.	.	7	32	10	41	27	95	40	177
32	143	84	171	420	2,125	338	1,378	503	2,401	479	1,938
46	81	46	27	2,270	893	624	305	4,117	1,889	2,809	1,661
16	6	5	2	39	15	91	37	679	351	413	286
44	40	177	83	1,527	869	558	418	2,420	1,566	1,321	1,150
6	2	.	.	472	134	.	.	983	604	353	567
71	20	3	1	273	93	555	140	376	122	558	141
35	27	20	17	1,817	484	493	276	2,517	702	1,137	809
764	365	67	32	1,225	775	615	279	1,989	1,140	632	311
135	127	127	144	891	778	379	507	2,394	2,557	1,886	2,048
21	4	9	3	474	72	290	55	1,431	281	675	243
.
68	16	230	46	668	327	865	455	1,339	847	1,711	1,055
217	99	220	126	607	141	255	115	1,680	729	4,529	2,281
1,455	880	938	652	10,683	6,696	5,063	3,965	20,428	13,189	16,553	12,490
No.	.	No.	.	No.	.	No.	.	No.	.	No.	.
.	.	.	.	.	.	.	.	390	2	527	3
.	.	72	4	1,063	40	1,153	40	1,999	75	1,977	90
Cwts.	.	Cwts.	.	Cwts.	.	Cwts.	.	Cwts.	.	Cwts.	.
.	.	.	.	38	4	302	17	282	16	1,063	40
No.	13	No.	15	No.	6	No.	3	No.	25	No.	52
6,678	13	7,686	15	6,300	6	2,205	3	17,892	25	29,351	52
Cwts.	79	Cwts.	91	Cwts.	178	Cwts.	201	Cwts.	316	Cwts.	399
342	79	467	91	817	178	975	201	1,265	316	1,676	399
.	92	.	110	.	228	.	264	.	431	.	584
.	972	.	762	.	6,924	.	4,229	.	13,623	.	13,074

correction in the Annual Returns.

STATEMENT of the TOTAL QUANTITY of FISH landed on the ENGLISH and WELSH COASTS during the Month and Three Months ended 31st March, 1908, compared with the corresponding Periods of the Year 1907.

	March.		Three Months ended 31st March.	
	1908.	1907.	1908.	1907.
	QUANTITY.			
	Owts.	Owts.	Owts.	Owts.
Brill,	1,881	1,567	6,155	5,150
Soles,	5,134	5,074	14,694	14,885
Turbot,	4,888	4,678	14,892	13,926
Prime Fish not separately distinguished.	—	—	—	—
Total Prime Fish, ..	11,853	11,319	35,741	33,961
Bream,	4,007	6,949	24,589	23,279
Catfish,	8,276	11,459	14,719	16,070
Coalfish,	28,681	13,010	80,049	47,250
Cod,	238,206	250,945	563,195	630,315
Conger Eels,	3,752	6,169	10,513	15,421
Dabs,	10,207	8,507	24,062	22,739
Dogfish,	557	1,623	6,274	8,704
Dory,	92	77	297	454
Flounders or Flukes,	1,461	1,125	2,754	2,485
Gurnards,	9,471	8,789	27,200	24,109
Haddock,	202,962	202,058	537,687	587,191
Hake,	44,877	45,332	122,501	102,571
Halibut,	10,702	9,593	22,578	17,723
Latchets (Tubs),	51	113	177	393
Lemon Soles,	4,388	3,685	9,285	8,068
Ling,	23,586	14,151	52,961	36,905
Megrims,	8,301	6,367	21,907	18,102
Monks (or Anglers),	2,868	2,904	7,662	8,741
Mullet (Red),	96	102	482	299
Plaice,	52,302	53,151	155,266	136,498
Pollack,	2,429	2,093	5,115	4,718
Skates and Rays,	28,515	34,512	89,370	98,180
Torsk,	1,884	1,209	4,778	2,191
Whiting,	32,370	23,212	86,558	67,477
Witches,	4,333	1,695	11,331	4,953
Herrings,	1,233	1,207	15,967	10,602
Mackerel,	15,178	18,868	29,630	22,884
Mullet (Grey),	175	67	268	578
Pilchards,	—	119	—	664
Sprats,	309	519	17,493	16,176
Whitebait,	570	569	1,744	1,803
Fish not separately distinguished,...	40,012	31,607	102,735	81,293
Total,	793,204	773,105	2,085,008	2,032,827
Shell Fish:—	No.	No.	No.	No.
Crabs,	299,880	169,485	685,809	367,939
Lobsters,	26,858	26,697	57,063	54,523
Oysters,	2,863,560	3,448,568	9,072,694	10,955,458
	Owts.	Owts.	Owts.	Owts.
Other Shell Fish,	41,907	42,824	139,098	137,830

NOTE.—The figures for 1908 are subject to correction in the Annual Returns.

STATEMENT of the TOTAL VALUE of FISH landed on the ENGLISH and WELSH COASTS during the Month and Three Months ended 31st March, 1908, compared with the corresponding Periods of the Year 1907.

	March.		Three Months ended 31st March.	
	1908.	1907.	1908.	1907.
	VALUE.			
	£	£	£	£
Brill,	6,866	6,184	20,358	18,642
Soles,	40,084	36,713	107,385	109,174
Turbot,	19,484	22,750	58,420	66,008
Prime Fish not separately distinguished.	—	—	—	—
Total Prime Fish, ...	66,434	67,647	186,163	193,824
Bream,	1,332	2,758	6,634	7,048
Oatfish,	3,654	4,441	6,748	7,263
Coalfish,	6,868	5,169	20,299	17,114
Cod,	119,331	172,480	328,280	451,135
Conger Eels,	2,737	4,771	8,247	13,045
Dabs,	7,723	8,189	19,965	22,067
Dogfish,	155	258	1,757	2,206
Dory,	102	82	326	442
Flounders or Flukes,	748	787	1,493	1,657
Gurnards,	2,815	2,609	8,247	7,789
Haddock,	118,022	146,902	370,385	427,025
Hake,	35,042	41,097	115,339	101,036
Halibut,	23,984	28,406	62,108	56,432
Latchets (Tubs),	34	97	143	327
Lemon Soles,	11,173	9,901	25,673	24,641
Ling,	11,527	9,283	27,777	23,543
Megrims,	5,945	5,819	18,137	17,967
Monks (or Anglers),	995	1,261	3,215	3,953
Mullet (Red),	212	224	1,164	730
Plaice,	70,404	69,139	208,173	195,914
Pollack,	1,183	1,350	2,774	3,165
Skates and Rays,	18,281	23,906	57,179	69,116
Torsk,	703	523	1,869	990
Whiting,	14,934	13,683	44,240	39,620
Witches,	4,943	2,352	12,959	7,736
Herrings,	173	511	5,237	5,154
Mackerel,	12,556	15,550	22,940	19,544
Mullet (Grey),	320	108	497	757
Pilchards,	—	36	—	197
Sprats,	41	38	3,093	2,530
Whitebait,	569	569	1,743	1,803
Fish not separately distinguished,...	18,041	15,991	47,438	38,924
Total,	560,961	655,937	1,620,243	1,764,694
Shell Fish :—				
Crabs,	3,241	2,257	7,353	5,090
Lobsters,	1,361	1,344	2,898	2,836
Oysters,	9,687	10,995	31,765	35,401
Other Shell Fish,	9,139	11,120	27,348	31,351
Total,	23,428	25,716	69,264	74,678
Total value of all Fish, ...	584,389	681,653	1,689,507	1,839,372

NOTE.—The figures for 1908 are subject to correction in the Annual Returns.

STATEMENT of the TOTAL QUANTITY and VALUE of the FISH returned as landed on the SCOTTISH COASTS during the Month and Three Months ended 31st March, 1908, compared with the corresponding periods for the Year 1907.

	March.		Three Months ended 31st March.	
	1908.	1907.	1908.	1907.
QUANTITY.				
	Cwts.	Cwts.	Cwts.	Cwts.
Herrings,	62,544	90,008	395,731	506,766
Sprats,	759	648	3,323	2,670
Sparlings,	8	17	32	49
Mackerel,	389	186	4,594	4,110
Cod,	96,798	70,735	195,987	182,958
Ling,	15,076	11,490	36,836	26,596
Torsk (Tusk),	1,181	979	2,654	1,699
Saith (Coal Fish),	12,291	11,636	34,405	30,016
Haddock,	95,481	97,764	277,808	259,464
Whiting,	12,181	13,523	44,070	35,466
Conger Eel,	7,264	4,827	20,873	12,867
Turbot,	438	460	1,212	1,304
Halibut,	3,512	2,203	5,837	4,104
Lemon Soles,	1,499	2,119	4,769	5,264
Flounders, Plaice, Brill,	6,169	6,985	16,850	17,001
Skate and Rays,	21,016	13,422	43,516	30,807
Fish not separately distinguished, except Shell Fish,	8,028	8,479	27,624	22,607
Total,	345,635	335,476	1,121,121	1,143,748
Shell Fish:—	No.	No.	No.	No.
Crabs,	134,072	70,604	398,316	245,913
Lobsters,	36,174	27,904	98,093	91,936
Oysters,	76,830	86,140	226,310	343,610
	Cwts.	Cwts.	Cwts.	Cwts.
Clams,	1,465	1,116	4,795	3,424
Mussels,	6,524	9,702	29,507	39,972
Other Shell Fish,	7,703	6,326	18,663	12,169
VALUE.				
	£	£	£	£
Herrings,	9,283	24,045	82,955	151,970
Sprats,	115	90	511	570
Sparlings,	43	67	110	131
Mackerel,	172	78	1,029	1,252
Cod,	36,024	32,868	91,394	92,370
Ling,	5,040	4,976	13,236	11,988
Torsk (Tusk),	355	325	880	578
Saith (Coal Fish),	2,087	2,498	7,187	7,039
Haddock,	49,660	50,995	156,861	152,159
Whiting,	5,501	5,613	18,868	16,989
Conger Eel,	2,768	2,382	8,251	6,360
Turbot,	1,659	1,664	4,807	4,526
Halibut,	7,014	5,286	13,467	10,382
Lemon Soles,	3,689	4,656	12,407	12,659
Flounders, Plaice, Brill,	7,322	8,226	21,282	22,356
Skate and Rays,	6,025	4,882	15,208	11,616
Fish not separately distinguished, except Shell Fish,	4,813	5,418	16,573	16,576
Total,	141,510	154,069	466,016	519,450
Shell Fish:—				
Crabs,	823	381	2,201	1,352
Lobsters,	2,130	1,678	5,690	5,153
Oysters,	294	316	1,233	1,200
Clams,	220	165	715	500
Mussels,	327	565	1,365	2,211
Other Shell Fish,	1,928	1,559	4,089	2,989
Total,	5,722	4,664	15,233	13,535
Total Value of Fish landed,	147,232	158,733	480,249	532,985

NOTE.—The above figures are subject to correction in the Annual Returns.

STATEMENT of the TOTAL QUANTITY and VALUE of the FISH returned as landed on the IRISH COASTS during the Month and Three Months ended 31st March, 1908, compared with the corresponding Periods of the Year 1907.

	March.		Three Months ended 31st March.	
	1908.	1907.	1908.	1907.
QUANTITY.				
	Cwts.	Cwts.	Cwts.	Cwts.
Brill,	62	63	189	200
Soles,	414	378	617	761
Turbot,	27	40	118	169
Total Prime Fish,	503	479	924	1,130
Cod,	4,117	2,809	8,581	6,214
Conger Eel,	679	413	1,944	1,117
Haddock,	2,420	1,321	7,886	6,834
Hake,	983	353	1,825	1,076
Herrings,	376	558	34,195	17,810
Ling,	2,517	1,137	4,337	2,831
Mackerel,	1,989	682	9,553	23,102
Plaice,	2,394	1,886	5,551	4,395
Ray or Skate,	1,431	675	2,782	1,710
Sprats,	—	—	—	158
Whiting,	1,339	1,711	4,128	5,486
Fish not separately distinguished, except shell fish.	1,680	4,529	3,474	9,633
Total,	20,428	16,553	84,980	81,296
Shell Fish:—	No.	No.	No.	No.
Crabs,	390	527	390	527
Lobsters,	1,999	1,977	5,010	6,435
Oysters,	17,892	29,351	74,374	104,470
Mussels,	Cwts.	Cwts.	Cwts.	Cwts.
Other Shell Fish,	282	1,063	2,137	9,268
	1,265	1,676	4,064	4,870
VALUE.				
	£	£	£	£
Brill,	88	137	276	436
Soles,	2,218	1,624	3,027	3,192
Turbot,	95	177	428	719
Total Prime Fish,	2,401	1,938	3,731	4,347
Cod,	1,880	1,661	4,680	4,095
Conger Eel,	351	286	1,065	796
Haddock,	1,666	1,150	4,561	3,881
Hake,	604	567	1,489	1,673
Herrings,	122	141	11,336	6,791
Ling,	702	809	1,674	2,053
Mackerel,	1,140	311	4,486	9,748
Plaice,	2,557	2,048	5,837	4,739
Ray or Skate,	281	243	635	734
Sprats,	—	—	—	24
Whiting,	847	1,055	2,570	3,633
Fish not separately distinguished, except shell fish.	729	2,281	1,791	4,768
Total,	13,189	12,490	43,855	47,262
Shell Fish:—				
Crabs,	2	3	2	3
Lobsters,	75	90	196	287
Oysters,	25	52	125	168
Mussels,	16	40	90	524
Other Shell Fish,	318	399	947	1,106
Total,	434	584	1,360	2,088
Total Value of Fish Landed,	13,623	13,074	45,215	49,350

NOTE.—The above figures are subject to correction in Annual Returns.

AVERAGE PRICES of CROPS, LIVE STOCK, MEAT, PROVISIONS, &c., for
the QUARTER ended 31st MARCH, 1908.

PRODUCT.	PROVINCE.				IRELAND.	
	Leinster.	Munster.	Ulster.	Con-naught.	1908.	1907.
CROPS :—	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
Wheat, per 112 lbs.	8 4½	6 9½	—	—	7 1½	6 4½
Oats (White), "	6 10½	6 8½	6 10	6 2½	6 9½	6 1½
" (Black), "	6 4½	5 4½	—	5 7½	5 7½	6 2
Barley, . "	—	—	—	—	—	—
Potatoes, . "	4 4½	3 8½	4 4½	3 5	4 3½	3 8½
Hay (Clover), . "	3 5	2 8	3 6½	3 0	3 3½	3 1½
" (Meadow), "	2 4½	1 8½	2 10½	2 5½	2 0½	2 6½
Grass Seed—						
(Perennial Rye), "	—	—	16 4	—	16 4	8 9½
(Italian Rye), "	—	—	—	—	—	—
Flax, . per 14 lbs.	—	—	6 7½	—	6 7½	7 2
LIVE STOCK :—						
Store Cattle :—	<i>£ s. d.</i>	<i>£ s. d.</i>	<i>£ s. d.</i>	<i>£ s. d.</i>	<i>£ s. d.</i>	<i>£ s. d.</i>
One year old, per head,	7 17 11	8 12 6	5 18 11	7 6 6	7 15 2	7 12 7
Two years old, "	10 14 0	10 16 9	8 7 9	9 18 10	10 3 8	10 3 11
Three years old, "	12 18 11	13 19 2	11 16 6	12 17 2	12 17 5	12 12 10
Springers, "	14 15 2	13 11 6	13 11 10	14 4 3	13 16 1	13 17 4
Store Sheep :—						
Lambs, . "	1 7 0	1 15 11	—	1 11 9	1 14 2	1 19 11
One year old and over, "	1 16 8	2 0 1	—	1 17 6	1 19 0	2 5 0
Two years old and over, . "	2 3 1	2 8 11	—	2 2 6	2 4 11	2 8 3
Store Pigs (8 to 10 weeks old), "	0 19 4	0 19 10	0 19 1	1 0 8	0 19 8	1 2 8
Fat Cattle :—						
Bullocks, . "	—	—	—	—	17 18 6	17 13 1
Heifers, . "	—	—	—	—	16 1 11	15 15 7
Cows, . "	—	—	—	—	15 6 8	15 16 4
Fat Sheep :—						
Wethers, . "	—	—	—	—	2 12 3	2 15 2
Ewes, . "	—	—	—	—	2 8 3	2 9 8
Hoggets, . "	—	—	—	—	2 2 0	2 8 2
Lambs, . "	—	—	—	—	—	—
MEAT, PROVISIONS, &c. :—	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
Beef (Live), . per 112 lbs.	—	—	—	—	32 9	32 0
" (Dead), "	—	—	—	—	57 4	56 0
Mutton (Live), "	—	—	—	—	40 0	43 2½
" (Dead), "	—	—	—	—	70 0	75 7½
Pork (Dead), . "	48 5½	45 3½	44 8½	44 4	45 3½	50 0½
Butter (Creamery), "	117 4	116 8	—	—	116 8	106 5
" (Factory), "	108 8	104 2	—	—	104 8	87 4
" (Farmers), "	106 7	112 3	122 0	93 3	110 11	90 5
Eggs, . per 120	9 0	8 0½	—	8 3½	8 7½	9 1½
Wool, . per lb.	0 8½	—	—	—	0 8½	1 1

WEEKLY AVERAGE PRICES of WHEAT, OATS, and BARLEY, per 112 lbs., computed from Market Returns of certain quantities of these Cereals supplied by Inland Revenue Officers, during the QUARTER ended 31st MARCH, 1908.

Returns received in the Week ended	WHEAT.		OATS.		BARLEY.	
	Average Price per 112 lbs.	Quantity.	Average Price per 112 lbs.	Quantity.	Average Price per 112 lbs.	Quantity.
1908.	s. d.	Cwts. of 112 lbs.	s. d.	Cwts. of 112 lbs.	s. d.	Cwts. of 112 lbs.
January 4, .	7 0	45	6 4½	9,748	—	—
" 11, .	7 11½	225	6 3½	9,156	6 8½	332
" 18, .	6 8	82	6 6½	10,836	—	—
" 25, .	6 8	15	6 4	12,243	—	—
February 1, .	6 10	98	6 2	10,431	5 4	16
" 8, .	6 8	105	6 1½	8,569	—	—
" 15, .	6 8	25	6 1½	9,868	6 0	12
" 22, .	6 8	74	5 11½	7,687	—	—
" 29, .	6 8	5	6 1	5,825	—	—
March 7, .	6 8	15	6 6½	6,378	—	—
" 14, .	—	—	6 0½	7,029	—	—
" 21, .	—	—	5 9½	6,816	—	—
" 28, .	—	—	6 0½	6,943	—	—

AVERAGE PRICES of FAT CATTLE and FAT SHEEP, per 112 lbs., LIVE WEIGHT, sold in the DUBLIN MARKET during the QUARTER ended 31st MARCH, 1908, and also for the corresponding period during the eleven preceding years.

DESCRIPTION.	YEAR.												
	1908.	1907.	1906.	1905.	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	
Fat Cattle.	32 9	32 0	30 11½	31 5½	30 8½	33 10	32 6½	32 4½	33 2	31 8	29 9½	31 4½	
Fat Sheep.	40 0	43 2½	42 5½	39 9½	39 6½	41 0½	34 7½	36 9½	37 5	34 1½	36 9½	36 11½	

NUMBER of ANIMALS included in Returns furnished under the **MARKETS and FAIRS (Weighing of Cattle) Act, 1891, Sections 3 and 4**, during the Quarter ended 31st MARCH, 1908.

WEEK ENDED	FAT CATTLE.					FAT SHEEP.			
	Dublin.		Belfast.		Total Number of Cattle included in Returns.	Dublin.		Belfast.	Total Number of Sheep included in Returns.
	Corporation Market Authorities.	Mr. Gavin Low, Auctioneer.	Corporation Market Authorities.	Mr. John Robson, Auctioneer.		Corporation Market Authorities.	Mr. Gavin Low, Auctioneer.	Corporation Market Authorities.	
January 2, .	63	245	—	29	337	—	258	—	258
" 9, .	62	199	—	13	274	28	230	—	258
" 16, .	72	161	—	36	269	28	402	—	430
" 23, .	42	149	—	25	216	28	205	—	233
" 30, .	62	173	—	27	262	20	206	—	226
February 6, .	61	142	—	28	231	10	123	—	133
" 13, .	57	117	—	48	222	15	200	—	275
" 20, .	54	122	—	9	185	21	258	—	279
" 27, .	53	133	—	11	207	28	146	—	174
March 5, .	69	121	—	18	203	20	189	—	209
" 12, .	58	109	38	28	233	9	247	56	312
" 19, .	69	87	68	23	249	—	121	64	185
" 26, .	49	75	45	27	196	10	145	69	221
Totals, .	776	1,340	151	322	3,069	217	2,790	189	3,196

DISEASES OF ANIMALS IN IRELAND.

NUMBER of OUTBREAKS of SWINE-FEVER, and Number of SWINE returned as having been SLAUGHTERED in Ireland, under the Diseases of Animals Act of 1894, in the undermentioned period, by Order of the Department.

Quarter ended	SWINE-FEVER.	
	Outbreaks confirmed.	Swine Slaughtered as Diseased or as having been Exposed to Infection.
31st March, 1908.	41	958

NUMBER of OUTBREAKS reported as having taken place, and NUMBER of ANIMALS returned as having been attacked by ANTHRAX and GLANDERS in Ireland in the undermentioned period.

Quarter ended	ANTHRAX.		GLANDERS (Including Farcy).		Epizootic Lymphangitis.	
	Outbreaks Reported.	Animals Attacked.	Outbreaks Reported.	Animals Attacked.	Outbreaks Reported.	Animals Attacked.
31st March, 1908,	3	6	—	—	—	—

NUMBER of Cases of RABIES in DOGS in IRELAND during the undermentioned period.

Quarter ended	Number of Cases.
31st March, 1908,	—

NUMBER of OUTBREAKS reported as having taken place, and NUMBER of ANIMALS returned as having been attacked by SHEEP-SCAB and PARASITIC-MANGE in Ireland in the undermentioned period.

Quarter ended	SHEEP-SCAB.		PARASITIC-MANGE.	
	Outbreaks Reported.	Sheep Attacked.	Outbreaks Reported.	Animals Attacked.
31st March, 1908,	214	3,294	15	21

Veterinary Branch,
Department of Agriculture and Technical Instruction for Ireland,
Dublin.

BUTTER PRICES DURING THE QUARTER

ABSTRACTED FROM "THE GROCER," "GROCER'S REVIEW,"

Excepting 1-lb. Rolls and Farmers' Butter all quotations are the Landed Prices of the less than the landed prices in Great Britain.

COUNTRY OF ORIGIN.	Type of Package.	Place of Sale.	WEEK ENDED					
			JANUARY					
			4th.	11th.	18th.	25th.		
IRELAND—	Creamery Butter.	Kiels, kegs, or pyramid boxes.	London, ...	Per cwt. s. s.	Per cwt. s. s.	Per cwt. s. s.	per cwt. s. s.	
			Liverpool, ...	—	—	—	—	
			Bristol, ...	—	—	—	—	
			Cardiff, ...	—	—	—	—	
			Manchester, ...	120-122	122-126	120-123	122-124	
			Birmingham, ...	—	—	—	—	
			Glasgow, ...	—	—	—	—	
			Limerick, ...	—	—	—	—	
			Cork, ...	—	—	—	—	
			Belfast, ...	—	—	—	—	
	Factories, ...	1 lb. rolls, 54 lb. boxes.	Dublin, ...	123-125	123-126	123-126	123-126	
			F. O. R., ...	127/2-133	121/4-133	125-133	126-133	
			London, ...	—	—	—	—	
			Liverpool, ...	—	—	—	—	
	Farmers' Butter.	Firkins, 1st. Export Price.	Bristol, ...	102-106	—	—	—	
			Cardiff, ...	—	—	—	—	
			Manchester, ...	—	—	—	—	
			Cork, ...	110-113	113-114	112-11/	114-118	
			Do. 2nd „	Cork, ...	104-108	108-113	110-1	113-116
			Do. 3rd „	Cork, ...	90-97	97-105	105-106	102-106
	Fresh, ...	Cork, ...	97-115	100-115	104-112	104-114		
		FRANCE, ...	12x2 lb. rolls, ...	London, ...	Per doz. lbs. 13-15/6	Per doz. lbs. 13-15/6	Per doz. lbs. 13-15/6	Per doz. lbs. 13-15/6
	Paris baskets, ...		do., ...	Per cwt. 122-126	Per cwt. 122-126	Per cwt. 122-126	Per cwt. 122-126	
DENMARK AND SWEDEN.	Kiels, ...	Copenhagen Quotation, ...	105 Kr. 119/- per 50 cwt. Kilos.	107 Kr. 120/2 per 50 cwt. Kilos.	107 Kr. 118/10 per 50 cwt. Kilos.	107 Kr. 119 per 50 cwt. Kilos.		
			Average overprice, ...	—	—	—	—	
			London, ...	123-125	124-126	124-126	124-125	
			Liverpool, ...	127/6-130	127/6-130	128/6-131	127/6-130	
			Bristol, ...	—	—	—	—	
			Cardiff, ...	128-129	128-129	130	129-130	
			Manchester, ...	127-130	126-130	126-130	125-128	
			Birmingham, ...	127-128/6	127-129	127-129/6	126-130	
			Newcastle-on-Tyne, ...	126-129	126-129	125-129	125-128	
			Glasgow, ...	125-126	125-126	126-127	126-127	
			Leith, ...	125-126	125-126	126-127	125-126	
			Hull, ...	126-130	127-130	127-131	127-131	
			F. O. R. London, ...	128/4	129/6	129/6	129/6	
	1 lb. rolls, 10x24 lbs. boxes.	...	...	...	...	...
FINLAND, ...	Kiels, ...	Manonester, ...	123-126	123-126	123-126	124-126		
		Liverpool, ...	—	—	—	—		
		Hull, ...	122-126	123-127	122-128	125-126		
		Cardiff, ...	—	—	—	—		

ENDED 31st MARCH, 1908.

"GROCER'S GAZETTE," AND OTHER TRADE REPORTS.

Choicest Qualities. The Nett F.O.R. Price to an Irish Creamery would be 5s. to 7s. per cwt. This figure covers freight, commission, handling, &c.

WEEK ENDED

FEBRUARY					MARCH			
1st.	8th.	15th.	22nd.	29th.	7th.	14th.	21st.	28th.
Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.
s. s.	s. s.	s. s.	s. s.	s. s.	s. s.	s. s.	s. s.	s. s.
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	124	120-122	120	118-120
—	127-128	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	114-116
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
123-126	126-130	130-153	145-150	140-145	123/8-128/4	118-126	116-120	116-120
121-133	126-144/8	126-149/4	146-158/8	144/8-156/4	135/4-140	130/8-140	126-130/8	121/4
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
118	118-129	129-142	125-141	110-122	113-115	114-115	112-115	108-110
110-117	114-125	125-139	121-136	100-120	106-113	106-110	104-109	104-107
102-109	107-123	120-130	115-130	93-115	96-99	103-105	103-105	99-103
106-115	100-130	113-140	115-143	100-123	93-109	99-114	99-116	98-110
Per doz. lbs. 13-15/6	Per doz. lbs. 13/6-16/-	Per doz. lbs. 14/6-17/-	Per doz. lbs. 15-17/6	Per doz. lbs. 14-16/6	Per doz. lbs. 14-16/6	Per doz. lbs. 14/6-17	Per doz. lbs. 13/6-16	Per doz. lbs. 13-15/6
Per cwt. 122-126	Per cwt. 129-131	Per cwt. 140	Per cwt. 143-145	Per cwt. 133-135	Per cwt. 133-135	Per cwt. 137-139	Per cwt. 128-130	Per cwt. 124-126
109 Kr. 121/4 per 50 cwt. Kilos.	114 Kr. 126/11 per 50 cwt. Kilos.	121 Kr. 138/7 per 50 cwt. Kilos.	125 Kr. 139/7 per 50 cwt. Kilos.	107 Kr. 119/7 per 50 cwt. Kilos.	107 Kr. 119/5 per 50 cwt. Kilos.	102 Kr. 113/10 per 50 cwt. Kilos.	102 Kr. 113/9 per 50 cwt. Kilos.	96 Kr. 107/2 per 50 cwt. Kilos.
—	—	—	—	—	—	—	—	—
126-128	136 142	148-153	146-152	124-126	124-127	118-122	118-120	112-114
127/6-130	136/6-144	145/6-152	151/6-156	—	124-129	124-129	119-122	116-122
—	—	—	—	—	—	—	—	—
128-130	134-135	144-148	152-154	140	128-130	128-130	122-124	122
126-128	129-134	140-145	150-157	128-142	120-124	121-125	116-122	115-120
124-130	130-134	139-145	149-154	—	124-128 6	124/6-128	118-124	116-123
126-127	129-131	139-143	152-156	140-146	121-125	121-125	116-120	115-118
126-127	130-132	143-146	154-158	140-148	122-127	124-127	120-121	118-119
124-126	129-130	138-140	152-154	146-148	120	124-126	118-120	117-119
128-131	132-136	142-151	152-155	136-153	124-130	126-129	120-124	117-124
131/10	137/8	149/4	150/6	129/6	129/6	123/8	123/8	116/8
124-126	127-131	137-142	146-152	126-138	120-122	121-123	115-118	113-116
—	—	—	—	—	—	—	—	—
126-128	130-134	140-149	150-153	132-148	122-128	124-126	117-120	116-119
—	—	—	—	—	—	—	—	—

[Continued on pages 590-591.]

BUTTER PRICES DURING THE QUARTER

ABSTRACTED FROM "THE GROCER," "GROCER'S REVIEW,"

Excepting 1 lb. Rolls and Farmers' Butter all quotations are the Landed Prices of the less than the landed prices in Great Britain.

COUNTRY OF ORIGIN.	Type of Package.	Place of Sale.	WEEK ENDED			
			JANUARY			
			4th.	11th.	18th.	25th.
RUSSIA & SIBERIA,	Kiebs, ...	London, ...	Per cwt. s. s. 110-112	Per cwt. s. s. 112	Per cwt. s. s. 114	Per cwt. s. s. 114
		Liverpool, ...	112	110	—	—
		Bristol, ...	110	112-116	112-116	—
		Cardiff, ...	—	—	—	—
		Manchester, ...	112-115	—	—	—
		Birmingham, ...	115/6-116	116	—	—
		Glasgow, ...	—	—	—	—
		Leith, ...	112-114	112-114	114-116	116-118
HOLLAND, ...	Boxes, ...	London, ...	116-118	—	—	—
	Rolls, ...	do. ...	Per doz. lbs. 13/6-14	Per doz. lbs. 13/6-14	Per doz. lbs. 14-14/6	Per doz. lbs. 14-14/6
	Boxes, ...	Glasgow, { Fresh,	Per cwt. 125-126	Per cwt. 125-126	Per cwt. 125-126	Per cwt. 125-126
		{ Salt,	120-122	120-122	120-122	120-122
		Manchester, ...	123-124	122-124	123-125	124
		Hull, ...	128-130	126-129	125-128	125-129
ITALY, ...	Rolls, ...	London, ...	Per doz. lbs. 13/6-15	Per doz. lbs. 12/6-14	Per doz. lbs. 12/6-14	Per doz. lbs. 13-14
CANADA ...	56 lb. boxes, ...	London, ...	Per cwt. —	Per cwt. —	Per cwt. —	Per cwt. —
		Liverpool, ...	—	—	—	—
		Bristol, ...	—	—	—	—
		Cardiff, ...	—	—	—	—
		Birmingham, ...	—	—	—	—
		Manchester, ...	—	—	—	—
		Glasgow, ...	—	—	—	—
AUSTRALIA & NEW ZEALAND.*	Boxes, ...	London, ...	A. { s. 112-116 u. 112-114 Z. 116-120	A. { s. 112-116 u. 112-116 Z. 118-120	A. { s. 114-118 u. 112-118 Z. 118-120	A. { s. 115-118 u. 116-118 Z. 118-120
		Liverpool, ...	A. 116-120/6	A. 114-121	A. 118/6-122	A. 117/6-121
		Bristol, ...	Z. 121/6-125	Z. 121-124/6	Z. 120/6-124	Z. 120/6-124
		Cardiff, ...	A. 114-120	A. 116-120	A. 118-120	A. 118-122
		Manchester, ...	Z. 118-124	Z. 120-124	Z. 120-124	Z. 122-124
		Birmingham, ...	A. 116-120	A. 116-120	A. 118-120	A. 118-122
		Glasgow, ...	Z. 120-122	Z. 122-123	Z. 122-123	Z. 122-123
		Leith, ...	A. 116-120	A. 117-120	A. 117-120	A. 119-122
		Hull, ...	Z. 120-122	Z. 120-123	Z. 121-124	Z. 120-124
			A. 118-122	A. 117-121	A. 117/6-122	A. 118-121
			Z. 121/6-124 6	Z. 121/6-125	Z. 122-125	Z. 121-124/6
			A. 117-119	A. 117-119	A. 119-121	A. 119-120
ARGENTINA, ...	Boxes, ...	London, ...	A. —	A. —	A. —	A. —
		Liverpool, ...	Z. —	Z. —	Z. —	Z. —
		Bristol, ...	A. —	A. —	A. —	A. —
		Cardiff, ...	Z. —	Z. —	Z. —	Z. —
		Manchester, ...	A. —	A. —	A. —	A. —
		Birmingham, ...	Z. —	Z. —	Z. —	Z. —
		Glasgow, ...	A. 114-124	A. 120-124	A. 120-124	A. 119-123
			Z. —	Z. —	Z. —	Z. —
UNITED STATES, ..	Tubs and boxes, ...	London, ...	112-118	114-120	114-120	116-118
		Liverpool, ...	117-120	116-120	117-121	117-121
		Bristol, ...	116-122	117-122	122	122
		Cardiff, ...	122-123	120-123	122-123	122-123
		Manchester, ...	118-120	118-121	119-122	120-122
		Birmingham, ...	121-122	118-122/6	118/6-122/6	118/6-122/6
		Glasgow, ...	117-118	117-118	117-118	119-120

* A.—Australia. Z.—New Zealand. s.—Salted. u.—Unsalted.

ENDED 31st MARCH, 1908—continued.

"GROCER'S GAZETTE," AND OTHER TRADE REPORTS.

Choiceest Qualities. The Nett F.O.R. Price to an Irish Creamery would be 5s. to 7s. per cwt. This figure covers freight, commission, handling, &c.

[illegible]

TABLES SHOWING THE EXPORTS

TABLE

RETURN of the NUMBER of ANIMALS EXPORTED from IRELAND to GREAT
PORTS of EMBARKATION

IRISH PORTS.	CATTLE.							SHEEP.			
	Fat.	Stores (fattening).	Milch Cows.	Springers.	Other Cattle.	Calves.	Total.	Fat.	Stores.	Lambs.	Total.
Ballina, . . .	132				72		204				
Belfast, . . .	6,701	11,270	1,316	1,822		857	24,966	1,161	21		1,182
Coleraine, . . .	3	38					41				
Cork, . . .	1,957	8,905	539	855	432	3,638	16,371	3,530	4,827	7	8,394
Drogheda, . . .	3,377	25	92	14			3,508	1,896		6	1,902
Dublin, . . .	5,315	26,800	5,194	1,011	445	1,873	65,638	27,802	30	5	27,927
Dundalk, . . .	* 2,352	2,524	248	154			5,278	200			200
Dundrum, . . .											
Greenore, . . .	1,690	1,800	231	547			4,108	96		13	109
Larne, . . .	824	3,770	1	10		1,254	5,359	93		2	95
Limerick, . . .	287	20				62	359				
Londonderry, . . .	3,797	10,629	174	824	281	2,240	17,936	1,086			1,086
Milford, . . .	6	83		2			91				
Mulroy, . . .	2	23				1	41				
Newry, . . .	62	556	10	6			633	196			196
Portrush, . . .		354		1			355				
Sligo, . . .	30	89			135		255	167			167
Waterford, . . .	6,127	6,999	27	61	224	312	13,750	4,213	115	44	4,372
Westport, . . .	31			5	68		104	690			690
Wexford, . . .	1,135	269	3				1,403	631			631
Total, . . .	58,228	77,160	7,836	5,312	1,657	10,272	160,465	41,851	4,993	77	46,921

TABLE

RETURN of the NUMBER of ANIMALS EXPORTED from IRELAND to GREAT
PORTS of DEBARKATION

BRITISH PORTS.	CATTLE.							SHEEP.			
	Fat.	Stores (fattening).	Milch Cows.	Springers.	Other Cattle.	Calves.	Total.	Fat.	Stores.	Lambs.	Total.
Ardrossan, . . .	1,965	1,795	723	539		50	5,072				
Ayr, . . .	1,711	6,188	203	586		828	8,516	268		2	270
Barrow, . . .	160	1,737	19	45			1,961				
Bristol, . . .	1,134	1,749	77	191		251	3,462	1,378	4,621	32	6,031
Cardiff, . . .											
Dover, . . .				1		4	5				
Falmouth, . . .											
Fishguard, . . .	4,079	8,693	376	567	13	3,240	16,968	4,378	321	19	4,718
Fleetwood, . . .	2,210	2,675	171	306		20	6,391	611			514
Glasgow, . . .	6,876	12,708	521	711	1,041	4,016	25,933	332			332
Greenock, . . .	239	2,023		11	7	9	2,285	14			14
Hayham, . . .	1,008	11,691	368	451		191	13,699	410			410
Holyhead, . . .	6,964	10,770	845	672	13	1	19,265	5,915	30	18	5,963
Liverpool, . . .	21,945	14,339	4,523	1,162	593	636	43,168	24,607	21	6	24,634
London, . . .			1				2	160			160
Manchester, . . .	6,529	44	14	5			6,592	3,861			3,861
Newhaven, . . .		20					20				
Plymouth, . . .	364	30					394				
Preston, . . .											
Silloth, . . .	2,714	768	4				3,486				
Southampton, . . .	26	31		4			61	14			14
Stranraer, . . .	306	2,873	1	2		1,023	4,205				
Total, . . .	58,228	77,160	7,836	5,312	1,657	10,272	160,465	41,851	4,993	77	46,921

AND IMPORTS OF ANIMALS.

I.

BRITAIN during the Three Months ended 31st MARCH, 1908, showing the
in Ireland.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	IRISH PORTS.
Fat.	Stores.	Total.		Stal- lions.	Mares.	Gold- lings.	Total.				
130		130								331	Ballina.
2,292	1,049	3,341	2	1	433	883	1,317	1	5	30,818	Belfast.
25		25			3	2	5		1	72	Coleraine.
12,422	40	12,462			80	203	283		151	37,634	Cork.
1,421	202	1,623	1		17	13	30			7,061	Drogheda.
91,902	31	91,933	3	16	801	714	1,514	3	26	190,044	Dublin.
8,552	1,425	9,977	103		105	77	182			15,740	Dundalk.
											Dundrum.
807	307	1,114	21		630	437	1,067		1	6,480	Greenore.
43	2,835	2,878		1	44	121	165		1	8,199	Larne.
					1	1	2			361	Limerick.
1,419	175	1,594	2		17	50	67		1	23,686	Londonderry
303		303				1	1		1	396	Milford.
394		394			1	1	2			437	Mulroy.
799		799			4	1	5			1,633	Newry.
87		87			1	1	2			413	Portrush.
8,636		8,636			2	1	3			9,061	Sligo.
17,500	1	17,501		2	237	319	556		41	36,252	Waterford.
2,202		2,202			2	1	3			2,989	Westport.
4,739	1	4,740		2	3	6	11			6,730	Wexford.
156,673	6,066	162,739	132	22	2,384	2,861	5,267	4	235	375,763	Total.

II.

BRITAIN during the Three Months ended 31st MARCH, 1908, showing the
in Great Britain.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	BRITISH PORTS.
Fat.	Stores.	Total.		Stal- lions.	Mares.	Gold- lings.	Total.				
284	1,302	1,586			69	192	261			6,919	Ardrossan.
205	1,806	2,011			8	30	38			10,835	Ayr.
1,305	34	1,339	1		11	19	30			3,331	Barrow.
13,170		13,170		2	49	95	146		2	22,801	Bristol.
						1	1			1	Cardiff.
										6	Dover.
					2	1	3			3	Falmouth.
10,596	1	10,597		2	252	378	632			32,916	Fishguard.
492	341	833	1	1	182	301	484	1	1	7,215	Fleetwood.
11,034	111	11,145	1		147	325	472	1	10	37,891	Glasgow.
15		15	1	1	7	7	15			2,311	Greenock.
12,803	64	12,867			105	155	263			27,239	Heysham.
68,730	307	69,037	23	15	1,243	969	2,227	2	20	86,537	Holyhead.
46,093	792	46,815	106		197	194	391		192	115,285	Liverpool.
8		8				1	1			175	London.
866		866			59	49	108		3	11,430	Manchester.
										20	Newhaven.
465		465			4	6	10			869	Plymouth.
						1	1			1	Preston.
					1	1	1			3,487	Silloth.
677		677			1	16	17			769	Southampton.
	1,308	1,308		1	44	121	166		1	5,680	Stranraer.
156,673	6,066	162,739	132	22	2,384	2,861	5,267	4	235	375,763	Total.

TABLE

RETURN of the NUMBER of ANIMALS IMPORTED into IRELAND from GREAT BRITAIN
of DEBARKATION

IRISH PORTS.	CATTLE.							SHEEP.		
	Fat.	Stores (fattening).	Milch Cows.	Springers.	Other Cattle.	Calves.	Total.	Sheep.	Lambs.	Total.
Ballina,
Belfast,	2	2	.	.	.	4	765	.	765
Coleraine,
Cork,
Drogheda,
Dublin,	11	.	2	.	.	13	126	.	126
Dundalk,
Dundrum,
Greenore,
Larne,	9	.	.	.	1	10	36	.	36
Limerick,
Londonerry,
Newry,
Portrush,
Rosslare,
Sing,
Waterford,	1	.	.	.	.	1	.	.	.
Westport,
Wexford,
Total,	23	2	2	.	1	28	927	.	927

TABLE

RETURN of the NUMBER of ANIMALS IMPORTED into IRELAND from GREAT BRITAIN
EMBARKATION in

BRITISH PORTS.	CATTLE.							SHEEP.		
	Fat.	Stores (fattening).	Milch Cows.	Springers.	Other Cattle.	Calves.	Total.	Sheep.	Lambs.	Total.
Ardrossan,	2	.	.	.	.	2	524	.	524
Ayr,	206	.	206
Barrow,
Bristol,
Cardiff,
Fishguard,
Fleetwood,
Glasgow,	1	.	.	.	.	1	197	.	197
Greenock,
Heysham,	3	2	.	.	.	5	.	.	.
Holyhead,	1	.	.	.	.	1	.	.	.
Liverpool,
London,
Manchester,
Newhaven,
Plymouth,
Silloth,	6	.	.	.	.	6	.	.	.
Southampton,	1	.	2	.	.	3	.	.	.
Stranraer,	9	.	.	.	1	10	.	.	.
Whitehaven,
Total,	23	2	2	.	1	28	927	.	927

III.

during the Three Months ended 31st MARCH, 1908, showing the PORTS in Ireland.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	IRISH PORTS.
Fat.	Stores.	Total.		Stal- lions.	Mares.	Geld- ings.	Total.				
.	.	.	.	12	49	53	114	.	1	881	Ballina.
.	.	.	.	2	48	52	102	.	.	102	Belfast.
.	Coleraine.
.	Cork.
.	.	.	2	17	260	163	440	.	1	582	Drogheda.
.	5	5	10	.	.	10	Dublin.
.	Dundalk.
.	Dundrum.
.	.	.	.	1	12	10	23	.	.	23	Greenore.
.	.	.	.	4	6	30	40	.	.	86	Larne.
.	1	.	1	.	.	1	Limerick.
.	.	.	.	2	3	3	8	.	.	8	Londonderry.
.	1	.	1	.	.	1	Newry.
.	3	2	5	.	.	5	Portrush.
.	1	.	1	.	.	1	Rosslare.
.	Sligo.
.	.	.	.	2	17	19	38	.	.	39	Waterford.
.	4	4	.	.	4	Westport.
.	Wexford.
.	.	.	2	40	406	311	787	.	2	1,746	Total.

IV.

during the Three Months ended 31st MARCH, 1908, showing the PORTS of Great Britain.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	BRITISH PORTS.
Fat.	Stores.	Total.		Stal- lions.	Mares.	Geld- ings.	Total.				
.	.	.	.	1	2	8	11	.	.	537	Ardrossan.
.	5	2	7	.	.	213	Ayr.
.	1	.	1	.	.	1	Barrow.
.	.	.	.	2	35	36	73	.	.	73	Bristol.
.	Cardiff.
.	.	.	.	4	28	33	65	.	.	65	Fishguard.
.	.	.	.	6	23	33	62	.	.	62	Fleetwood.
.	.	.	.	3	21	22	46	.	.	244	Glasgow.
.	8	4	12	.	.	12	Greenock.
.	.	.	.	5	1	3	9	.	1	15	Heysham.
.	.	.	2	14	227	141	382	.	.	385	Holyhead.
.	.	.	.	1	27	24	52	.	1	53	Liverpool.
.	London.
.	3	2	5	.	.	5	Manchester.
.	Newhaven.
.	1	.	1	.	.	1	Plymouth.
.	17	2	19	.	.	25	Silloth.
.	1	1	2	.	.	5	Southampton.
.	.	.	.	4	6	30	40	.	.	50	Stranraer.
.	Whitehaven.
.	.	.	2	40	406	311	787	.	2	1,746	Total.

RETURN of the NUMBER of ANIMALS EXPORTED from IRELAND to the
showing the PORTS of

IRISH PORTS.	CATTLE.					SHEEP.		
	Fat.	Stores.	Other Cattle.	Calves	Total.	Sheep.	Lambs.	Total.
BELFAST,
DUBLIN,
TOTAL,

RETURN of NUMBER of ANIMALS EXPORTED from IRELAND to the
showing the PORTS of DEBARKATION

ISLE OF MAN PORT.	CATTLE.					SHEEP.		
	Fat.	Stores.	Other Cattle.	Calves	Total.	Sheep.	Lambs	Total.
DOUGLAS,

RETURN of the NUMBER of ANIMALS IMPORTED into IRELAND from the
showing the PORTS of

IRISH PORTS.	CATTLE.					SHEEP.		
	Fat.	Stores.	Other Cattle.	Calves	Total.	Sheep.	Lambs.	Total.
BELFAST,
DUBLIN,
TOTAL,

RETURN of the NUMBER of ANIMALS IMPORTED into IRELAND from the
showing the PORTS of EMBARKATION

ISLE OF MAN PORT.	CATTLE.					SHEEP.		
	Fat.	Stores.	Other Cattle.	Calves	Total.	Sheep.	Lambs.	Total.
DOUGLAS,

ISLE OF MAN during the Three Months ended 31st MARCH, 1908,
EMBARKATION in IRELAND.

[illegible]

ISLE OF MAN during the Three Months ended 31st MARCH, 1908,
in the ISLE OF MAN.

[illegible]

ISLE OF MAN during the Three Months ended 31st MARCH, 1908,
DEBARKATION in IRELAND.

[illegible]

ISLE OF MAN during the Three Months ended 31st MARCH, 1908,
in the ISLE OF MAN.

[illegible]

COASTING AND

RETURN of the NUMBER of ANIMALS SHIPPED to and from Places in Ireland
of Embarkation

IRISH PORTS.	CATTLE.					SHEEP.			SWINE.		
	Fat.	Stores.	Other Cattle.	Calves.	Total.	Sheep.	Lambs.	Total.	Fat.	Stores.	Total.
Cork to Aghada Pier, . . .	.	.	.	10	10	.	.	.	1	.	1
„ to Belfast, . . .	.	1	.	.	1	.	.	.	.	.	.
„ to Spike Island, . . .	.	.	.	.	.	.	.	.	.	.	.
„ to Queenstown, . . .	.	.	.	.	.	.	.	.	.	.	.
„ to Waterford, . . .	.	10	.	.	10	.	.	.	.	.	.
Total, . . .	.	11	.	10	21	.	.	.	1	.	1
Aghada Pier to Cork, . . .	.	.	.	.	.	135	.	135	514	.	514
Dublin „ . . .	.	.	.	.	.	.	.	.	.	.	.
Spike Island „ . . .	.	.	.	2	2	.	.	.	7	.	7
Queenstown „ . . .	.	.	.	.	.	.	.	.	57	.	57
Waterford „ . . .	.	.	.	.	.	.	.	.	.	.	.
Total, . . .	.	.	.	2	2	135	.	135	578	.	578
Waterford to Ballyhack, . . .	.	.	.	.	.	.	.	.	.	.	.
„ to Belfast, . . .	.	.	.	.	.	.	.	.	.	.	.
„ to Duncannon, . . .	.	52	.	38	90	.	.	.	.	3	3
Total, . . .	.	52	.	38	90	.	.	.	.	3	3
Ballyhack to Waterford, . . .	146	58	.	.	204	105	.	105	116	.	116
Duncannon to Waterford, . . .	79	66	.	.	145	7	1	8	282	.	282
Kilrush to Limerick, . . .	48	107	.	.	155	.	.	.	1,055	.	1,055
Kildysart „ . . .	.	10	.	.	10	.	.	.	152	.	152
Glin „ . . .	.	.	.	.	.	.	.	.	.	.	.
Portumna „ . . .	.	.	.	.	.	.	.	.	580	.	580
Tarbert „ . . .	.	.	.	.	.	.	.	.	.	.	.
Banagher „ . . .	.	.	.	.	.	.	.	.	140	.	140
Total, . . .	48	117	.	.	165	.	.	.	1,927	.	1,927
Greencastle to Greenore, . . .	.	117	.	.	117	.	.	.	11	.	11
Greenore to Greencastle, . . .	.	.	.	.	.	.	.	.	.	.	.
Londonderry to Moville, . . .	5	.	.	.	5	.	.	.	.	.	.
Moville to Londonderry, . . .	20	176	10	20	226	.	.	.	14	.	14
Ballina to Sligo, . . .	.	.	.	.	.	.	.	.	.	.	.
Belmullet „ . . .	.	.	1	.	1	.	.	.	766	.	766
Total, . . .	.	.	1	.	1	.	.	.	766	.	766
Mulroy to Milford, . . .	.	1	.	.	1	.	.	.	.	.	.
Milford to Mulroy, . . .	3	2	.	.	5	.	.	.	.	4	4
Mulroy to Portrush, . . .	.	.	.	.	.	.	.	.	.	.	.
Portrush to Mulroy, . . .	.	.	.	.	.	.	.	.	.	.	.
Total, . . .	301	600	11	70	982	247	1	248	3,695	7	3,702

INLAND NAVIGATION.

during the Three Months ended 31st March, 1908, showing the Places and Debarkation.

Goals.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	IRISH PORTS.
	Stallions.	Mares.	Geldings.	Total.				
.	.	.	1	1	.	.	12	Cork to Aghada Pier,
.	1	" to Belfast.
.	" to Spike Island.
.	" to Queenstown.
.	10	" to Waterford.
.	.	.	1	1	.	.	23	Total.
.	.	.	1	1	.	.	650	Aghada Pier to Cork.
.	Dublin "
.	9	Spike Island "
.	57	Queenstown "
.	Waterford "
.	.	.	1	1	.	.	716	Total.
.	Waterford to Ballyhack.
.	" to Belfast.
.	.	4	.	4	2	3	102	" to Duncannon.
.	.	4	.	4	2	3	102	Total.
1	426	Ballyhack to Waterford.
.	.	1	.	1	.	.	436	Duncannon to Waterford.
.	1,210	Kilrush to Limerick.
.	162	Kildysart "
.	Glin "
.	580	Portumna "
.	Tarbert "
.	140	Banagher "
.	2,092	Total.
.	128	Greencastle to Greenore.
.	Greenore to Greencastle.
.	5	Londonderry to Moville.
.	.	.	1	1	.	.	241	Moville to Londonderry.
.	Ballina to Sligo.
.	767	Belmullet "
.	767	Total.
.	1	Mulroy to Milford.
.	9	Milford to Mulroy.
.	1	1	Mulroy to Portrush.
.	.	.	1	1	.	.	1	Portrush to Mulroy.
1	.	5	4	9	2	4	4,948	Total.

RETURN of the NUMBER of HORSES EXPORTED from IRELAND through GREAT BRITAIN to the COLONIES and FOREIGN COUNTRIES during the THREE MONTHS ended 31st MARCH, 1908, showing the Ports of Embarkation in Ireland.

PORTS.	Number of Horses.			
	Stallions.	Mares.	Geldings.	Total.
Belfast,	—	68	61	129
Cork,	—	4	5	9
Dublin,	—	39	33	72
Dundalk,	—	63	37	100
Greenore,	—	223	95	318
Waterford,	—	14	15	29
Total,	—	411	246	657

RETURN of the NUMBER of HORSES IMPORTED into IRELAND through GREAT BRITAIN from the COLONIES and FOREIGN COUNTRIES during the THREE MONTHS ended 31st MARCH, 1908, showing the Ports of Debarkation in Ireland.

PORTS.	Number of Horses.			
	Stallions.	Mares.	Geldings.	Total.
Belfast,	—	—	—	—
Dublin,	—	3	1	4
Waterford,	—	—	—	—
Total,	—	3	1	4

RETURN of the NUMBER of HORSES IMPORTED into IRELAND direct from FOREIGN COUNTRIES during the THREE MONTHS ended 31st MARCH, 1908, showing the Ports of Debarkation in Ireland.

PORTS.	Number of Horses.			
	Stallions.	Mares.	Geldings.	Total.
Dublin,	—	—	—	—
Portrush,	—	—	—	—
Total,	—	—	—	—

EMIGRATION FROM IRELAND.

TABLE showing, by Destinations, the Numbers of Emigrants (Natives of Ireland) who left the Ports of Ireland during the months of January, February, and March, 1908, and the total for the Three Months ended the 31st March, 1908; together with the total Number of Emigrants in each of the corresponding periods of the year 1907.

DESTINATION.	January, 1908.	February, 1908.	March, 1908.	Three Months ended 31st March, 1908.
FOREIGN COUNTRIES :—				
America (U.S.),	256	473	1,327	2,056
Canada,	48	79	288	415
South Africa,	11	18	10	39
Australia,	37	42	28	107
New Zealand,	6	16	5	27
Other Countries,	11	15	7	33
Total,	369	643	1,665	2,677
GREAT BRITAIN :—				
England and Wales,	137	183	142	462
Scotland,	135	108	74	317
Total,	272	291	216	779
General Total for 1908,	641	934	1,881	3,456
General Total for 1907,	693	1,196	2,670	4,569

The figures are subject to revision in the Annual Report.

The figures in the above Table have been extracted from Returns published by the Registrar-General for Ireland.

ACCOUNT showing the QUANTITIES of certain kinds of AGRICULTURAL
into Ireland in each WEEK from

ARTICLES.	WEEK ENDED				
	4th Jan.	11th Jan.	18th Jan.	25th Jan.	1st Feb.
ANIMALS, LIVING—					
Horses, No.	.	.	.	.	.
FRESH MEAT—					
Beef (including refrigerated and frozen), cwt.	.	.	.	.	.
Mutton, " " " " " "	.	.	.	.	.
SALTED OR PRESERVED MEAT—					
Bacon, cwt.	.	.	.	.	.
Beef, . . . . . "	.	.	.	.	.
Hams, . . . . . "	.	.	.	.	1
Pork, . . . . . "	.	.	.	.	.
Meat, unenumerated, Salted or Fresh, cwt.	.	.	.	.	.
Meat preserved otherwise than by salting (including tinned and canned), cwt.	.	.	.	.	.
DAIRY PRODUCE AND SUBSTITUTES—					
Butter, cwt.	.	.	.	.	.
Margarine, "	84	57	81	132	76
Cheese, "	.	4	.	1	.
Milk, Condensed, "	9	90	121	119	39
" Cream, . . . . . "	.	.	.	.	.
" Preserved, other kinds " "	.	.	.	.	.
EGGS, gt. hunds.	720	180	2,100	600	804
LARD, cwt.	153	14	734	.	6
CORN, GRAIN, MEAL, AND FLOUR—					
Wheat, cwt.	65,800	277,400	.	11,400	46,600
Wheat Meal and Flour, "	1,000	34,300	92,800	58,100	15,300
Barley, "	.	5,400	.	.	.
Oats, "	.	15,700	16,100	.	.
Peas, "	.	.	360	40	40
Beans, . . . . . "	.	.	.	.	.
Maize or Indian Corn, "	172,900	.	288,100	153,800	173,700
FRUIT, RAW—					
Apples, cwt.	.	.	25	.	.
Currants, . . . . . "	.	.	.	.	.
Gooseberries, . . . . . "	.	.	.	.	.
Pears, . . . . . "	.	.	.	.	.
Plums, . . . . . "	.	.	.	.	.
Grapes, . . . . . "	.	.	.	.	.
Lemons, . . . . . "	.	.	.	.	.
Oranges, . . . . . "	.	.	.	.	.
Strawberries, . . . . . "	.	.	.	.	.
Unenumerated, . . . . . "	.	.	.	.	.
HAY, tons	.	.	.	.	.
STRAW, . . . . . "	.	.	.	.	.
MOSS LITTER, "	132	55	72	72	.
HOPS, cwt.	.	.	.	.	.
VEGETABLES, RAW—					
Onions, bushels	2,634	816	1,680	2,076	400
Potatoes, cwt.	.	.	.	.	.
Tomatoes, . . . . . "	.	.	.	.	.
Unenumerated, . . . . . £	.	.	.	.	.
VEGETABLES, DRIED, cwt.					
Preserved by Canning, . . . . . "	.	.	.	.	.
POULTRY AND GAME, . . . . . £	.	.	.	.	.

* This Table is confined to the Imports of certain kinds of Agricultural Produce into a request from this Department kindly consented to separate the Irish Imports (direct) form of Weekly Returns.

PRODUCE Imported direct (i.e. from the Colonies or Foreign Countries)
4th January, 1908, to 28th March, 1908.*

WEEK ENDED							
8th Feb.	15th Feb.	22nd Feb.	29th Feb.	7th March.	14th March.	21st March.	28th March.
.
.	.	3,700	.	.	.	.	.
.	.	2,120	.	.	.	.	.
.
.
.	.	.	.	233	.	.	45
.	.	33	.	.	.	.	.
.	1,768	24	.	97	10	.	.
.	.	.	.	.	.	3	.
48	129	53	96	99	71	68	68
4	.	.	6	9	1	.	.
77	32	64	30	96	54	62	83
.
.	960	.	240	36	.	.	.
.	.	110	2,864	1,990	100	.	.
.	233,400	125,900	356,000	331,200	270,200	11,900	79,300
900	15,800	59,000	32,000	27,000	21,400	3,600	25,400
.	6,500	.	.	.	.	54,500	.
.	.	.	3,000	18,900	.	19,100	.
150	60	40	460	.	30	80	20
151,300	265,900	158,200	338,700	224,800	190,300	82,300	216,900
.	.	.	244	.	60	60	.
.
.
.
.
.
.
.
.
11	33	.	104	45	22	161	102
.
3,776	2,994	4,108	2,080	3,532	980	1,230	600
.
8	9	.	.	2	2	.	.
50	.	.	.	.	.	.	.
.
.

Ireland from the Colonies and Foreign Countries. The Board of Customs have in answer from those of the United Kingdom, and to supply this Department with them in the

Statistics and Intelligence Branch,
 Department of Agriculture
 and Technical Instruction for Ireland.

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DEPARTMENT OF AGRICULTURE

AND

TECHNICAL INSTRUCTION FOR IRELAND.

JOURNAL.

Meeting of the Council of Agriculture—The Vice-President's Address—The Protection of Woodlands—Investigation of a Disease in Young Cattle—The Farmer and the Labourer: a Talk with Labourers—Mutual Live Stock Insurance in France—Technical Instruction in Dundalk—Crop Report—Fruit Crop Report—Potato Blight—The Keeping of Egg Records—The Importance of Milk Records—Official Documents—Notes and Memoranda—Statistical Tables.

EIGHTH YEAR.

No. 4.

JULY, 1908.



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NOTICE.

Communications respecting the literary contents of this JOURNAL should be addressed to the Superintendent of the Statistics and Intelligence Branch, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion-street, Dublin.

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THE COUNCIL OF AGRICULTURE.

The thirteenth meeting of the Council of Agriculture was held on Tuesday, 19th May, 1908, in the Royal University of Ireland, Earlsfort-terrace, Dublin.

The chair was taken at 11 o'clock by Mr. T. W. Russell, M.P., Vice-President of the Department.

The following were present:—

Representing the Department.—The Vice-President; Mr. T. P. Gill, Secretary; Mr. J. R. Campbell, Assistant Secretary in respect of Agriculture; Mr. George Fletcher, Assistant Secretary in respect of Technical Instruction; Mr. R. Cantrell, I.S.O., Chief Clerk; Mr. W. G. S. Adams, Superintendent of the Statistics and Intelligence Branch; Mr. J. S. Gordon, Chief Agricultural Inspector; Mr. J. P. Walsh, Clerk in Charge of Accounts; Mr. J. D. Daly, Senior Staff Officer; Mr. T. Butler; Mr. J. V. Coyle; Mr. A. Kelly; Mr. H. G. Smith; Mr. R. H. Lee; and Mr. E. O'Neill.

MEMBERS OF COUNCIL, ACCORDING TO PROVINCES.

Leinster.

Robert A. Anderson; Gerald J. Brennan, J.P.; Algernon T. F. Briscoe, J.P.; Stephen J. Brown, J.P.; Captain Loftus A. Bryan, J.P., D.L.; Thomas M. Carew; Denis J. Cogan; Major J. H. Connellan, D.L.; William M. Corbet; Thomas W. Delany, William Delany, M.P.; Robert Downes, J.P.; Colonel Nugent T. Everard, H.M.L.; William Field, M.P.; Rev. T. A. Finlay, M.A., F.R.U.I.; James Galvin; Patrick Hanlon; Patrick J. Kennedy, J.P.; James M'Carthy; The Right Hon. The Earl of Mayo, K.P., P.C., D.L.; Joseph Mooney, J.P.; George F. Murphy, J.P.; Patrick J. O'Neill, J.P.; Charles H. Peacocke, J.P.; William R. Ronaldson; James Mackay Wilson, J.P., D.L.

Ulster.

Edward Archdale, J.P., D.L.; Frank Barbour; Rev. E. F. Campbell, M.A.; Alexander L. Clark, J.P.; George Knox Gilliland, J.P., D.L.; Robert T. Huston, M.R.C.V.S.; John Keenan, J.P.; John S. F. M'Cance, J.P.; Thomas A. M'Clure, J.P.; T. P. M'Kenna, J.P.; H. de F. Montgomery, D.L.; Rev. Laurence

O'Ciarain, P.P.; Captain John Patrick, J.P.; Robert H. S. Reade, J.P., D.L.; Colonel R. G. Sharman-Crawford, J.P., D.L.; William Smyth, J.P.;* Captain T. Butler Stoney, J.P., D.L.; Thomas Toal, J.P.

Munster.

Captain William C. Coghlan, J.P.; Thomas Corcoran, J.P.; Edmond Cummins, J.P.; Thomas Duggan; Patrick J. Hogan, J.P.; William M'Donald, J.P.; Patrick S. Manning; Michael Mescal, J.P.; Edmond Nugent, J.P.; William W. O'Dwyer, J.P.; David Leo O'Gorman; Timothy Sheehy; George F. Trench, J.P.

Connaught.

The Right Hon. Lord Clonbrock, K.P., P.C., H.M.L.; P. J. Costello; Rev. Joseph G. Digges, M.A.; John Galvin; Thomas G. Griffin; Rev. M. J. M'Hugh, P.P.; Rev. P. M'Loughlin, P.P.; Daniel Morrin; Colonel John P. Nolan, J.P.

Mr. J. D. Daly acted as Secretary to the meeting.

The minutes of the twelfth meeting, 19th November, 1907, a copy of which had been sent to each member of the Council, were taken as read, and were signed as correct.

The Vice-President delivered his address.*

Rev. T. A. Finlay referred to the resolution adopted at the last meeting of the Council on the subject of the grant to the Irish Agricultural Organisation Society. That resolution was to the effect that the Council should recommend the Agricultural Board to continue a diminishing grant for a period of years, at the end of which it would cease altogether. The resolution was a compact between the Department and the Council. But at a meeting of the Agricultural Board held in January last, this compact was set aside without any further reference to the Council, and it was decided that the grant should be withdrawn at the end of a year. This procedure raised the question of the relations of the Council itself to the Department of Agriculture. He thought that this question should be defined in a way that would preclude the occurrence of such an incident in future.

The Vice-President explained that the Agricultural Board were charged under the Act of Parliament with the control of the Department's endowment for agriculture, and no grant could be made from that fund without their concurrence. He stated the

* See p. 614, *et seq.*

circumstances that led to the action taken by the Board in this matter, and referred to certain correspondence in the *Freeman's Journal*, and to other articles and speeches concerning the future policy of the Society. As this correspondence implied the association of the Irish Agricultural Organisation Society with hostility to a political party and to certain trading interests, the Board unanimously decided that the Department would not be justified in continuing to subsidise the Society, and that accordingly the subsidy should be withdrawn at the end of a year.

Colonel Everard said that no desire whatever existed on the part of the Society to antagonise any political party. As an ex-president of the Society, he concurred in the minute adopted by the Agricultural Board, but with an important limitation that the Department should undertake direct organisation only when it was shown that the Society was unable to cope with the work.

After some further discussion, Rev. T. A. Finlay said the debate on the policy had gone beyond the issue that he had raised. In the circumstances, however, he would not move the resolution that he had intended to propose.

The following resolution, proposed by Mr. Stephen J. Brown, J.P., and seconded by Mr. William W. O'Dwyer, J.P., was passed unanimously:—

“That this Council considers it urgently necessary that immediate action should be taken to carry into effect the recommendations of the recent Departmental Committee on Irish Forestry, and that a copy of this resolution be sent to the members of the Cabinet, and to all the Irish members of Parliament.”

The following resolution standing on the agenda paper in the name of Mr. William Field, M.P., was not moved:—

“That we call upon the Legislature to adopt the recommendations of the Forestry Committee, and provide funds for carrying out the adequate reafforestation of Ireland in conjunction with the co-operation of elected local authorities.”

The following resolution, proposed by Mr. Thomas Duggan (on behalf of Mr. Hugh Ryan), and seconded by Mr. William W. O'Dwyer, J.P., was passed unanimously:—

“That the inclusion on the Register of half-bred sires is one which meets the approval of this Council, who further strongly urge upon the Department greatly to increase their operations in purchasing and rearing half-bred colts with a view to their registration and sale in districts where agricultural stallions have already been declared unsuitable.”

The following resolution was proposed by Mr. Gerald J. Brennan, J.P., and seconded by Major J. H. Connellan, D.L.:—

“That the report of the Kilkenny Live Stock Committee of the 28th of March last, adopted by the County Committee of Agriculture on the 6th April, be approved by the Council of Agriculture; and that the Department be requested to facilitate the working of the dairy herd scheme by sanctioning the recommendations proposed by the Kilkenny County Committee.”

The following is a copy of the report referred to in the foregoing resolution:—

“The Live Stock Committee having given careful consideration to Mr. Butler's letter, are of opinion that sufficient attention is not being paid by the Department to the Irish Dairy Herd Scheme, inasmuch as very few farmers are aware of the existing regulations for the registration of dairy cows, and in the opinion of this Committee the time has come for the more active co-operation of the Department in the development of the scheme, and that local committees should be endowed with powers similar to the horse breeding scheme to carry out the scheme in their respective areas; local inspections for the selection of cows to be held at distances not exceeding six miles in our dairy districts.”

After considerable discussion, in which several valuable recommendations were made and noted, Mr. Brennan accepted the Vice-President's suggestion that the resolution should be withdrawn.

The resolution was accordingly, by leave, withdrawn.

The following resolution, proposed by Mr. William M'Donald, J.P., and seconded by Mr. R. Downes, J.P., was passed unanimously:—

“That the Department take steps to investigate methods of drying grain crops in racks in accordance with recent inventions.”

The following resolution was proposed by Mr. William M'Donald, J.P., and seconded by Mr. Alexander L. Clark, J.P.:—

“That in view of the grievous loss inflicted on the farmers by the sale of inferior seeds, manures, and feeding stuffs, we think it urgently necessary that the Department should publish the names of the manufacturers of such articles which have been sampled and analysed, together with the results of the analyses and the prices charged.”

After considerable discussion, the Vice-President said that while the Department were in sympathy with the object of the resolution, they could not undertake to adopt the mode of

action proposed. The various suggestions made in the course of the debate would, however, be carefully considered.

Mr. M'Donald said that in view of the Vice-President's statement he would ask leave to withdraw the resolution.

The resolution was accordingly, by leave, withdrawn.

The following resolution, proposed by Mr. William Field, M.P., and seconded by Mr. R. Downes, J.P., was passed unanimously:—

“That we call upon the Legislature to pass an Act giving powers to the Department of Agriculture in Ireland to prohibit any sire—save certain excepted thoroughbreds—bull, ram, or boar, from doing service in public for a fee, unless they have been passed up to a certain standard of excellence and registered by local authorities; also, that supervision should be exercised to prevent breeding from old worn-out animals or those suffering from organic disease.”

The following resolution was proposed by Mr. James M'Carthy and seconded by Mr. P. J. O'Neill, J.P.:—

“That in order to encourage the selection and cultivation of the varieties of wheat and oats most suitable for seed and milling purposes by Irish farmers, a scheme be forthwith devised by the Department of Agriculture by which exhibitors of grain at the various county and local shows may be brought into competition at the Winter Show of the Royal Dublin Society; and that a silver medal of the Department be presented to the winner of the first prize, and a bronze medal to the winner of the second prize in each class of the different kinds of grain above mentioned; and that a special gold medal be awarded to the winner of the first prize—in either wheat or oat sections—for two successive years.”

After some discussion, the Vice-President suggested that Mr. M'Carthy should confer with the officials of the Department on the matter.

Mr. M'Carthy accepted this suggestion, and asked leave to withdraw the resolution.

The resolution was accordingly, by leave, withdrawn.

The following resolution was proposed by Mr. R. T. Huston, M.R.C.V.S., and seconded by Mr. William Field, M.P.:—

“That owing to the enormous annual loss sustained by the stock-owners of this country, not only through death, but depreciation in value, of the herds brought about by the increasing ravages of germ diseases, this Council is of opinion that the time has arrived when there should be a sufficiently endowed research laboratory established in Ireland by the

Department of Agriculture, feeling, as they do, that we are quickly moving into an age when preventive ought largely take the place of curative treatment for many diseases affecting our domesticated animals."

The Vice-President explained the steps already taken by the Department in the direction suggested, and after some further discussion, at the Vice-President's suggestion, Mr. Huston asked leave to withdraw the resolution.

The resolution was accordingly, by leave, withdrawn.

The following resolution, standing on the agenda paper in the name of Mr. Peter Ffrench, M.P., was proposed by Mr. C. H. Peacocke, J.P., and seconded by Mr. Timothy Sheehy:—

"That the Department of Agriculture take the necessary steps to afford harbour accommodation for the fishermen's boats and small craft at Fethard, South Wexford."

The Vice-President suggested that the resolution should be amended so as to read:—

"That the Department of Agriculture should consider the advisability of taking steps to afford harbour accommodation for the fishermen's boats and small craft at Fethard, South Wexford."

Mr. Peacocke accepted the Vice-President's suggestion, and the resolution, as amended, was put and passed unanimously.

The following resolution was proposed by Mr. Edmond Cummins, J.P., and seconded by Mr. Thomas Corcoran, J.P.:—

"That the Department be requested to allow of more elasticity in the carrying out of their Live Stock Scheme, and that County Committees be allowed to vary such in certain particulars in accordance with the requirements of their local circumstances."

After some discussion, the Vice-President said that the matter could be considered when the schemes for next season were being prepared.

Mr. Cummins thereupon asked leave to withdraw the resolution.

The resolution was accordingly, by leave, withdrawn.

The following resolution, proposed by Rev. M. J. M'Hugh, P.P., and seconded by Mr. P. J. Costello, was passed unanimously:—

"That in the opinion of this Council, the Department of Agriculture should take prompt steps to see that spraying machines and reliable materials should be procurable on easy terms by farmers outside the congested districts. While some provision is made for obtaining spraying machines and

analysed materials in congested districts, there is practically none for the non-congested districts. The terms 'Congested' and 'Non-congested' are unmeaning as far as a distinction goes between poor and less poor districts, as it often happens that people living in districts not registered as congested are poorer and more dependent than those in the districts known as congested."

Mr. William M'Donald called attention to the tillage scheme adopted by the Cork County Committee at the instance of the Most Rev. Dr. Kelly, Lord Bishop of Ross, under which prizes were given for the best tilled farms; and suggested that if other counties followed the example of Cork, tillage would be improved throughout the country.

Mr. John Galvin asked if it were true that certain counties in Ireland, including Roscommon, did not receive a share of the funds allocated for technical instruction.

The Vice-President said that this statement was not accurate. County Roscommon was in receipt of a sum of £450 a year from the Department in connection with their technical instruction scheme. If, however, Mr. Galvin would submit a written statement on any points to which he desired to draw attention, the Department would give the matter careful consideration.

The Council adjourned at 4.20 o'clock.

THE VICE-PRESIDENT'S ADDRESS TO THE COUNCIL OF AGRICULTURE

MY LORDS AND GENTLEMEN,—I am glad to be able to say that my address to-day will have at least one recommendation, that of comparative brevity. There are some questions, however, upon which the Council will expect information, and with which I desire to deal. First of all, I wish to touch upon the question of

THE FINANCES OF THE DEPARTMENT.

I think it necessary to bring this subject before the Council, not because you have any executive control over the spending branches, but because this meeting gives me an opportunity of addressing the general public through you, and because I think it important that the public, expecting as it does, much from the Department, ought to be made aware of the limitations which these financial conditions impose upon the work.

To begin with, two points must be made clear. First, the entire income on the Agricultural side, amounting to £107,000 per annum, is wholly hypothecated, mainly to the work carried on by County Committees. Indeed the Department has overdrawn its account in this direction, and last year spent £11,000 beyond its income, the overdraft being made good from the Reserve Fund. The same thing is true in regard to the Technical Instruction side of the Department's work. The Endowment set aside by statute for this work, amounting to £55,000 per annum, has also been wholly hypothecated; and in the same way a sum of £9,000 has been drawn from the funds on the agricultural side to meet the urgent demands of necessary technical instruction of a rural character. I may say that extra provision for this class of work has been made in a similar

manner for several years past. It will probably be asked why the Reserve Fund, which upon 31st March, 1908, amounted to some £248,000, has not been further availed of. The answer is conclusive. Out of this large amount a sum of £233,500 has been allocated by the Agricultural Board for work deemed to be necessary and essential to the completion of a deliberate policy which they adopted in the earlier years of the Department's existence. It must not be concluded, however, that the money so allocated has been entirely spent. On the contrary, a great portion of it is intact. A sum of £50,000, for example, has been set aside for loans, and, of course, this is not expenditure in the ordinary sense, *i.e.*, it comes back. Another sum of £50,000 has been allocated for the erection of agricultural colleges or schools. No part of this money has yet been expended, but a portion of it has been actually sanctioned for a college or school in North-West Ulster, and other districts are making arrangements for similar institutions. I mention these two cases—and they are typical—for the purpose of pointing out that, while the Reserve Fund standing to the credit of the Department is very large, the prospective charges upon it which have been sanctioned by the Agricultural Board leave the actual sum available very little over £14,000, a balance which will go but a short way to meet the demands which are constantly being made upon our resources.

This explanation will, I hope, make it plain to those who imagine that all sorts of calls made upon the Department should be honoured at once, that it is not practicable to meet them, even if they were approved, without a great increase in the moneys at our disposal. In my judgment the work of the Department has grown so continuously that further financial aid is absolutely necessary, and Parliament ought to bear in mind, in face of a demand such as this, that much of the Department's expenditure is reproductive. It is not money paid away with no result. It is actually telling upon the whole country in improvement in live stock, in better farming, in the rapid increase of the small and subsidiary agricultural industries, and in the great development of technical education that has taken place.

THE COMMITTEE ON FORESTRY.

In my address to the Council last year I referred to the fact that I had appointed a Departmental Committee to consider the question of forestry. I have now to inform you that the Committee have concluded their inquiry, have reported, and that the report is in the hands of the Government and upon the table of both Houses of Parliament. I must take this opportunity of returning my thanks to the members of the Committee for their assistance. They have done the work they were so kind as to undertake at my request in a most masterly fashion and with splendid promptitude. And I feel that I ought specially to recognise the invaluable services of Mr. Gill, who undertook the onerous work of presiding over the Committee in addition to his own multifarious and responsible duties. The recommendation of the Committee has been met with universal approval. The two prime necessities of the case appear to me to be, first, to arrest the cutting down of timber now proceeding at an alarming rate. Much of this is inevitable owing to the operations of the Land Purchase Acts. The Estates Commissioners are frequently compelled when dealing with an estate to sell the timber on the best terms they can secure. Tenants, on the other hand, coming into possession of their holdings, and not always realising the value of the timber, proceed to dispose of it. And, again, landlords who have not sold are, in some cases, depleting their estates of the timber upon them. The whole proceedings are fraught with injury to the country, and, although it will involve considerable expenditure, it is important to remember that much of that expenditure will be reproductive—will, in fact, be an investment of money, for a return upon which the State can afford to wait. The second point of importance is that the local authorities, *i.e.*, the County Councils, ought to be placed in a position to re-afforest those lands suitable for planting. Several tentative experiments are now proceeding in different counties, experiments which the Department have been glad to assist; and I trust that before long financial aid will be forthcoming to enable the recommendations of the Departmental Committee to be carried out. I have never known a case for State action so completely demonstrated.

PROPOSED LEGISLATIVE MEASURES.

I referred last year incidentally to the fact that a good deal of Departmental legislation was in arrear and would have to be undertaken immediately. In this connection I should first of all like to say that the Pharmacy Bill, which has twice been the subject of discussion by this Council, was again introduced in the House of Lords, as a Government Bill, and that Ireland was not included within its scope. Acting upon the resolutions of the Council, and upon my knowledge of the general feeling in the country, I attended before the Joint Committee of both Houses, before which the Bill came in March last, and gave evidence in favour of its provisions being extended to this country. The Committee has not yet reported, but I have very little doubt that the omission to include Ireland will be rectified, and that a legitimate grievance of many farmers in the more remote parts of the country will be remedied. As to other measures, I propose to introduce, during the present Sessions, Bills dealing with Navigation Works, the Fertilisers and Feeding Stuffs Acts, Foul Brood in Bees, the Merchandise Marks Act, a close time for Salmon Fishing, and with a new subject which has forced itself to the front, viz., the control of Whaling Stations on the Irish coast. Those Bills are all ready, and I hope it may be possible to secure their enactment during the present Session. None of them are controversial in the party sense. They are simply Departmental measures, and will, I am sure, be welcomed by all sections of Irish members. Although I am aware of the difficulty of securing Parliamentary time in a Session so crowded and so full of combat, I am hopeful of success.

IRISH PRODUCE IN GREAT BRITAIN.

The first year's schemes of the Agricultural Branch of the Department were devoted very properly to encouraging improvement in the quality of our agricultural produce. This side of the work is now well organised. All the County Committees are engaged upon it, and if the progress that has been made is maintained they will have no need to be discouraged with the result of their efforts. We wish to specialise in the commodities

required for the British breakfast table, viz., in butter, bacon, and eggs. For these articles there is an almost unlimited demand. Our system of small holdings specially lends itself to their production. Moreover, I believe that no foreign competitor, not even Denmark, is capable of producing a finer quality of butter, bacon, and eggs, than Ireland, a view which is confirmed by the opinion of the Agricultural Staff of the Department, whose business it has been to study the conditions of production and the quality of the output of other countries. We must confess, however, that as yet too small a proportion of our export of these articles reaches the high standard of our best. We must seek to grade up our second and third rate products, and, if possible, eliminate them altogether. This is a high ambition, but it can be achieved by the exercise of determined perseverance in the application of technical knowledge and of skill and business capacity to the industry. As I have said, the early years of the Department's existence were mainly devoted to encouraging improvement in production. The time has now come, however, when more time and attention can be profitably given to pushing our goods in the British markets, advertising their quality, and protecting them from fraud of all kinds. There is perhaps no better proof of the improvement in our exports and of their high quality than the fact that all over England and Scotland unscrupulous persons find it profitable to label foreign and other inferior articles as Irish.

During the past year the Department have pushed on the work of the two agencies it has at work in Great Britain for helping the sale of our agricultural produce. The business of the one is to advertise the goods and push their sale, that of the other is to discover, expose, and so suppress frauds practised to their detriment.

EXHIBITIONS OF IRISH AGRICULTURAL PRODUCTS IN GREAT BRITAIN.

For the introduction of our butter, bacon, eggs, poultry, and other agricultural produce to the notice of wholesale buyers who trade mainly with our foreign competitors we have found the organisation of shows of produce in connection with Grocers' and

Confectionery Exhibitions in the large centres of consumption of the utmost value. These we follow up by sending our agents to those engaged in the retail trade to collect information as to defects in quality and in packing, as well as to seek information regarding the special requirements and peculiarities of the local trade. This information is transmitted to our Inspectors and Instructors engaged on this side, and by them to the people engaged in production. Exhibitions of the kind described above have been held in London, Cardiff, Birmingham, Leeds, Newcastle, Edinburgh, and Glasgow. An account of the latter may be read in the last number of the Department's *Journal*. Preparations are now well advanced for holding a further series. The most gratifying results have attended this section of the Department's work. Large buyers dealing exclusively in foreign goods have expressed their astonishment at the improvement in and the high quality of our goods. A vast number of inquiries for agencies and for the names of reliable exporters have resulted, and Irish connections have been established in new centres and greatly extended in others. If those concerned in the output here will now back up the Department by strict attention to uniformity in quality and packing, the work of our advertising agency will prove the most remunerative yet undertaken.

DETECTION AND SUPPRESSION OF FRAUD ON IRISH PRODUCTS.

Equally good progress has been made with the second branch in Great Britain, viz., that aiming at the detection and suppression of a widespread system of what can legitimately be described as fraud in the disposal of goods in the British markets. Throughout England and Scotland it is common for margarine to be sold as Irish butter, and for factory butter to be sold as Irish creamery butter; for American bacon to be sold as Irish bacon, and even for imitations of Irish lace to be sold as the real article. Altogether, a state of affairs most prejudicial to Ireland has been proved to exist. Our staff for dealing with this state of affairs has succeeded in enabling the Department to undertake a large number of prosecutions, and convictions have been obtained in almost every case. Fines and even imprisonment have been the result; and the Superior Courts when

appealed to by those convicted have strongly upheld the decision of the Courts below. These convictions and the publicity which they have obtained must be productive of great benefit, and in order that this work may be vigorously continued the Department, with the concurrence of the Agricultural Board, have decided to strengthen their staff engaged on it. It is hoped that this will assist in more quickly arresting these fraudulent practices so detrimental to the Irish producer and so unfair to the consumer.

Few people realise the great opening that exists for the high class article in Great Britain or the demand which all this work has recently created for it. It has been estimated that there is a demand in Glasgow alone for about £750,000 worth of Irish butter per annum, and we do not send anything like this amount to the whole of Scotland. Some traders have placed the increased return attributable to our work in Great Britain at a very high figure—at as much as £250,000 per annum. But even making all necessary deductions, it is certain that the best results are following the Department's activity.

GROWTH OF THE SMALLER AGRICULTURAL INDUSTRIES.

There is one aspect of this question to which I desire to draw the attention of the Council, and upon which we may congratulate ourselves. Proofs, as I have said, are now accumulating that the educational work of the Department is beginning to bear fruit. Nobody with any knowledge of the subject now questions the enormous improvement in the live stock of the country; and if there be any people left still in doubt as to this, they ought to consult the English dealers, who are the strongest witnesses to the fact. The same thing is true in regard to horses. But a charge that has often been made against the Department—that its schemes affect the well-to-do farmers and overlook the smaller cultivators of the soil, is now beginning to meet its refutation. In and out of Parliament I have heard this charge made, and I gladly seize this opportunity to show what the facts really are. During the years 1905 and 1906 the export value of cattle (exclusive of horses and other live stock) from Ireland was estimated approximately as follows:—

1905,	£8,928,253
1906,	£9,146,915

This, according to some authorities, is the real staple trade of the Irish agriculturist. I am far from questioning its value, but I wish to point out that, what may for convenience be called the four main subsidiary industries, viz., the exports of butter, bacon, eggs, and fowl, are rapidly forging ahead. The figures for 1907 are not yet fully available, but taking the two previous years, the export value of these industries was as follows:—

	1905.	1906.
Butter,	£3,357,666	£3,576,720
Bacon and Hams,	2,255,297	2,392,122
Eggs,	2,515,611	2,727,410
Fowl,	696,923	725,441
	<hr/> £8,825,497	<hr/> £9,421,693

It will be observed that there was an increase in 1906 in every item. This proves that the small farmers are benefiting by the education that has been, and is being, given; that they are learning to take pains; and the testimony is universal that, although much is left to be desired, yet quality and quantity are alike improving. When the complete figures for 1907 are available I believe they will show the same upward tendency. In view of the policy of establishing small economic holdings in the country, and of the necessities of the western portion of Ireland especially, I know nothing more satisfactory than those figures. Here I may mention that early this year a new institute upon the lines of the Munster Institute has been opened in Ulster at Loughry, near Cookstown, Co. Tyrone. Its success is already assured, the house being full. A school on similar lines, though more suited to the special needs of the western small holders, has been opened at Clifden in Galway, and before long two more of the same type will open, one in the congested districts of Mayo, and the other in the backward districts of Sligo.

IRISH FISHERIES.

At our last meeting I called attention to the unsatisfactory state of the Fisheries in Ireland. I do not mean by this to reflect upon the highly competent officers in charge of the work; but I think it my duty to refer to the lamentable condition of affairs connected with this industry. As a matter of fact, applications are constantly made to the Department by members of Parliament, by clergymen interested in the fishing population, by local bodies, and

by others, all of which applications involve expenditure of money for boat slips, for piers, and for other similar purposes. The necessities are clear, and I think, in many cases, urgent. The fact is that to a considerable extent the fishing population is diminishing, and the industry itself gives serious evidence of decline. Now, the points which I desire to make plain are these—by the Act of 1899 the Department was constituted the Fishery Authority for Ireland. Of course, it must be remembered that their powers do not extend to the congested districts, but they cover the whole of the rest of Ireland. Being constituted the Fishery Authority, a sum of £10,000 per annum was placed at the disposal of the Department for the purposes of this industry. In addition to this, a small fund, entitled the Sea and Coast Fisheries Fund, was handed over; and from this source, amounting roughly on its transfer to £25,000, we are enabled, as Parliament intended and provided, to make small loans to fishermen. But anyone considering the wants and the needs of the Irish coast must see the futility of a Department endeavouring to grapple with the difficulties of the situation with such a scanty endowment. Things are not made better by the fact that £4,000 per annum out of the entire sum voted is devoted to policing the coast, leaving £6,000 for the purpose of aiding and developing the fisheries of Ireland. The Department's powers are subject to this financial limitation, and I think the time has come when the fact ought to be faced. Members of Parliament, at least, ought to know that so long as the Department is subject to financial limitations such as I have described, the work of reviving and establishing the fishing industry cannot be successfully carried out.

The Department has this year provided a new steamship to take the place of the fishery cruiser *Helga*. This vessel, built by the Dublin Dockyard Company, was launched on Saturday last (16th May), and reflects great credit on its builders. The new *Helga*, being a much faster ship than its predecessor, may be relied to do even better work.

FOOT AND MOUTH DISEASE.

In February last the country was startled to learn that an outbreak of Foot and Mouth Disease had occurred at Murrayfield, near Edinburgh. Recognising the extreme danger to which such an outbreak subjected this country, the Department promptly prohibited the importation of all ruminating animals from Great Britain. The first outbreak was followed by a second and a third,

and it having been established that the disease was due to hay imported from Holland, and used as fodder, Orders were issued prohibiting altogether the importation from foreign countries, and also from Great Britain, into Ireland of hay and straw for use as fodder or litter. I am happy to be able to state that the outbreak was confined to the district where it originally occurred, that it did not spread in Scotland, and that it never appeared in Ireland. This being the case, the Orders were rescinded on the 1st instant (May), save and except as regards the prohibition of the importation of hay and straw from foreign countries. A similar prohibition exists in Great Britain. How long it may be necessary to maintain this restriction depends largely upon the condition of affairs on the Continent. The disease is known to hang about, and to be seldom altogether absent from, certain districts; and it would be unwise to run unnecessary risks, having regard to the interests involved, and the importance of avoiding a repetition of the huge expenditure incurred in the past in eradicating the disease. Animals, however, can now be again imported under the same conditions as formerly obtained. Our restriction on the importation of cattle from Great Britain, I regret to say, inconvenienced many persons who had purchased high-class sires for breeding purposes. I have to thank them for the public spirit they displayed in accepting without serious complaint the trouble and expense which the Department's regulations imposed upon them.

THE DEPARTMENT AND THE IRISH AGRICULTURAL ORGANISATION SOCIETY.

In November last you adopted a resolution on my suggestion in regard to the relations between the Department and the Irish Agricultural Organisation Society. Under the arrangement then arrived at, the grant made to the Society was to be continued on a diminishing scale and to terminate at the end of three years. I have to inform the Council that, owing to certain correspondence in the Press which, in the opinion of the Department, gravely imperilled our work, it was unanimously decided, with the concurrence of the Agricultural Board, that the grant should cease at the end of the present year. I do not wish to raise any controversy in connection with this matter. The action taken, in my judgment, was necessary. The matter had better now pass into history.

TECHNICAL INSTRUCTION SCHEMES.

Turning now to the Technical Instruction Branch of the Department, I should like briefly to refer to the main lines of its operations. In each of these there is a record of steady progress. You will call to mind that in view of the great necessity for reforming the teaching of Science in Irish Secondary Schools and introducing a scheme of practical instruction in place of the theoretical teaching which had previously characterised these schools, and in view of the fact that such a duty devolved upon the Department since they inherited the powers and responsibilities previously exercised in Ireland by the Board of Education, South Kensington, they immediately set to work to frame a scheme of instruction. This system is now firmly established in Irish Secondary Schools, and there are now no fewer than 289 Secondary Schools carrying out the Department's programme, and affording instruction to 15,000 (fifteen thousand) students. The total grant paid by the Department for the session 1906-7 in respect of this teaching was over £25,000, and this amount was provided wholly from the annual Parliamentary Vote. This scheme, which we believe to be of the highest importance, not only plays a very important part in preparing our youth for professional and industrial careers, but also lays a foundation absolutely necessary for future university training for those enabled to receive it. I am glad to say that this scheme includes not only Experimental Science and Drawing, but also Manual Instruction in Boys' Schools and Domestic Economy in the case of Girls' Schools. The great difficulty with which the Department were faced of providing trained teachers for this important work has been largely solved by the organisation of summer courses of instruction, which are attended annually by several hundreds of teachers, who have been ready to sacrifice a large portion of their summer holidays to equip themselves for this important work.

TECHNICAL SCHOOLS.

The growth of technical schools has been more remarkable still, and here the structure had to be erected from the ground. There are now something like 128 Technical Schools, small and large, and they are attended by 25,000 (twenty-five thousand) students. The introduction of the Revised Scheme for the Administration of

Science and Art grants has been the means of greatly increasing the grants to these schools, and at the same time causing them to improve their organisation and improve their efficiency. There are abundant signs that this work, which is progressing in so satisfactory a manner, will profoundly influence the growth and prosperity of Irish industrial effort.

I must here advert to what may perhaps be described as the greatest difficulty encountered in this work, viz., the unpreparedness of a large number of the pupils joining the Technical Schools. This matter was recently brought up at a meeting of the Board of Technical Instruction, and it is clear that there is great need for the encouragement of institutions of an evening continuation school type which would fill the gap between the work of the primary schools and the work of the technical schools. Owing to this need we are now compelled to repair defects at the lower end of our scheme when we would fain be employing our energies and means in the higher branches of Technical Instruction.

Steady progress characterises the work of the County Technical Instruction Committees, whose operations are largely devoted to the rural areas. Among the various directions taken by their work perhaps the most important is that carried on in rural districts by means of itinerant teachers trained by the Department. There are now at work sixty Itinerant Teachers of Domestic Economy, and forty-five Itinerant Teachers of Manual Instruction. These give about 650 separate courses of instruction during the year, and the courses are attended by some 20,000 students. The Department are endeavouring to make their work in rural districts increasingly applicable to the needs of those depending upon the land, and they realise the need of, and seek to encourage, industries ancillary to agriculture, industries which are recognised as essential to the success of that industry.

GENERAL PROGRESS OF DEPARTMENT'S WORK.

In conclusion, I wish to say that the work of the Department in every county in Ireland is growing apace. The most cordial relations exist between the County Committees, the County Councils, and the Department. There is increasing evidence not alone as to the growth of the work, but as to its growing popularity. There are those who distrust some of our educational methods.

Many believe, for instance, that addresses by itinerant lecturers are out of date, and that they are unsuitable to many parts of Ireland. It was never contemplated that this scheme of itinerant instruction should continue in its original form in any county for more than two years, and I think it possible that to a large extent these addresses have played their part, have aroused the necessary interest in the subject, and that the time is ripe for more specific action and instruction. The Department is meeting this latter want by the formation of winter classes in every part of the country; by the establishment of schools and colleges; by increased attention to practical field demonstrations, to the protection of farmers in the use and purchase of manures, seeds, and feeding stuffs; and by a development of the work in connection with prizes for well-kept small farms and cottages, and competitions in skilled labour. With all these schemes at work, aided by the higher teaching of the Royal College of Science, the Albert College at Glasnevin, and the Munster and Ulster Institutes, he must be an utter unbeliever in the power of education who fails to come to the conclusion that this work is bound to tell upon the future of Ireland.

THE PROTECTION OF WOODLANDS.

The histories of most countries in Europe prove that forests were the predominating form of vegetation

Forests in

Primeval Times.

which existed when natural rather than artificial conditions prevailed. The strong vitality of forest trees, their high powers of reproduction, and their ultimate freedom from attack by grazing animals contributed in some form or other towards a condition of things which covered three-fourths of Europe with a more or less uninterrupted forest growth, which was continually in process of renewal by successive generations of tree-growth. Although no direct evidence can be produced on the point, it is highly probable that these natural forests were, from the first, more remarkable for their uniform distribution over the surface of the Continent than for the quality of the timber they produced, or the density with which the latter stood on the ground. This is frequently illustrated in examples of forest areas which still remain in an absolutely natural condition, although reduced to a mere remnant of their original size. Such areas still contain the same species of trees and shrubs, and practically the same types of animals which characterised them centuries ago, and thus enable both the process of regeneration and the effect of natural enemies to be observed and studied. Apart from a few practically extinct and harmless species, these animals were the ancestors of the present races of deer, goats, and cattle, together with such smaller animals as rabbits, squirrels, mice, etc., all of which lived partially or entirely upon the leaves, fruit, or branches of trees. Such animals had, in the earliest times, their enemies in the shape of wolves and bears, and in this respect natural conditions have changed, and the balance of nature been disturbed to the disadvantage of the forest, in the more thickly populated countries. But making due allowance for changes of this kind, it is usually found that the natural forest growth is able to hold its own over large areas against the barking and browsing to which it is continually exposed; and in spite of the maiming or total destruction of thousands of seedlings or saplings on every acre, sufficient survive to cover the ground with those groups and clumps of trees characteristic of most forests of this kind.

But while a forest may be perpetuated in the above manner, the condition it presents is rarely such as

**Need of Forest
Protection.**

to satisfy the economic forester or timber user. The production of clean and straight stems of a uniform rate of growth and the high yield of high-class timber per acre which result from skilled woodcraft carried on under proper conditions, are rarely associated with natural forests to any great extent, although fine timber may be produced there in patches and favoured spots. Where, however, land is comparatively scarce or valuable or the need for large quantities of well-grown timber arises, as is invariably the case upon the appearance of civilisation, the natural forest, with its scattered and irregular crop, loses favour with the economist and utilitarian, and the question arises as to whether its retention is justifiable in the interests of the community. The settling of such questions has usually resulted in sealing the doom of the natural forests in most parts of Europe, and has led to the repeal of numerous forest laws which hindered the cultivation of the land or its reclamation by enclosure and improvement.

Other causes have also led to the shrinking of the natural forest area in almost every European country. Apart from the utilization of timber for domestic and structural purposes, and the total clearing or enclosure of land for agriculture, which can be traced back for many centuries, the war waged against various carnivorous animals on the one hand and the steady increase of domestic animals in the forest, such as sheep, goats, cattle, and horses, on the other, quickly disturbs the process of natural regeneration upon which the continued existence of forests depends, and a time comes in the history of most countries when a perceptible decrease in the forest areas occurs. Such decrease is, in the ordinary course of events, inevitable, for so long as timber and other forest growths are superfluous and in excess of local requirements their destruction is naturally regarded with indifference by those in authority and forest protection finds no place in a national administration until the process of destruction has been carried to excess, and protective and remedial measures become absolutely necessary.

A course of events more or less similar to that described may be traced in the histories of almost all countries in Central and Southern Europe, and the more rapid the increase in population or the progress of civilisation the quicker the rate at which it has

proceeded. Parts of Northern Europe may, perhaps, still be found with a proportion of forest in excess of national requirements; but in such cases climatic conditions have rendered any great increase of animal life difficult, and the natural enemies of the forest have been better kept in check, while the natural enemies of the latter, in turn, have not been so thoroughly exterminated. Climate has also hastened or retarded the destruction of European forests. Hot

**Effect of Climate
on Forests.**

summers and frequent drought, which parch and wither lower forms of vegetation, compel grazing animals to turn their attention to the leaves and branches of trees within their reach, and large numbers of seedlings are destroyed at such times. Mild winters, with little or no snow, also assist in the same direction, as young trees are exposed to attack at all seasons of the year owing to cattle being wintered in the open. Forest fires are also more prevalent in warm climates, although their occurrence depends very greatly upon the class of tree present. The above reasons account very largely for the more rapid destruction of forests in Southern Europe than has been the case further north, except where mountain ranges afford a rugged and broken surface and where there is a local climate with a heavier rain and snow-fall, conditions more conducive to natural regeneration in unprotected forests.

While forest destruction and the reduction of the area devoted to timber trees have thus been advancing

**Artificial Protection
of Forests.**

side by side in all countries of Europe from time immemorial, the last two or three centuries have witnessed the inauguration of a policy of reconstruction in several which has done much to check, and in some cases to remedy, the mischief done in the past. Without going too closely into details, it may be stated that records of forest protection in its most elementary form date from about the twelfth or thirteenth centuries in Germany, France, Switzerland, England and other countries in which rural economy had by then made some progress. At the outset, such protection was little more than the framing of measures by local administrative bodies, having for their object the protection of the timber still remaining and the removal of the principal obstacles in the way of its natural reproduction. The free cutting

of firewood or timber was restricted to certain species and the grazing of live stock prohibited in certain portions of the forest, and such like attempts to preserve the wooded area with the minimum of expense and trouble were resorted to in almost every district in which records have been preserved. It is probable that many of these measures were not strictly enforced, owing to the wide area in need of control, or the slackness or scarcity of forest officers. In any case, experience proved the invariable futility of such regulations, and the necessity, sooner or later, for more thorough methods of protection. These took the form of temporary fencing on thinned or felled areas, and the exclusion of all live stock until stool shoots or seedlings had been given time to reach a size safe against attack. Accompanying this increase of protection, the sowing of tree seeds, or rough cultural methods for securing their germination appear to have

Beginning of Forest Cultivation. been practised, and this in a way marks the beginning of a period, dating from about the sixteenth century, which has witnessed

the steady development of silviculture in most countries in Europe. Up to that date the regulation of forests in England would appear to have closely resembled that prevailing in the various States which are now comprised in Germany and in other parts of the Continent. But while technical or economic forestry made no headway in England, and the Royal hunting forests, when once disafforested, were allowed to gradually disappear, the opposite appears to have taken place in many parts of Europe. In place of the old natural forests being maintained simply for game and such timber and firewood as they were able to produce without assistance, a system of conservation and improvement was introduced and gradually built up by the administrative authorities, until large areas which were originally little more than waste land became covered with crops of timber of the highest commercial value and of incalculable benefit to the country at large. One result of this step was that the bulk of the Continental forests were maintained in large compact areas, which were clearly recognised by the local population as national property to be treated with respect and protected against trespass and injurious grazing. This not only cheapened enormously the preservation of the forest land but avoided the necessity for erecting thousands of miles of expensive fencing, and in these facts alone the explanation of much of the success which has attended State forestry in Europe may be found.

In the United Kingdom generally the development of forestry has been practically left to private enterprise. Little was done until the seven-
Forest Development in the United Kingdom.teenth century, by which time every square mile of land had been appropriated for agriculture or grazing, and small and insignificant patches of woodland alone remained scattered throughout the country. Land set apart for new plantations had to be laboriously fenced, existing boundaries and fences had to be considered in the process, and many difficulties were encountered before a block of even one hundred acres could be enclosed and planted.

The small scale on which work could alone be carried out was probably responsible for the system of raising plantations from transplants reared in a nursery in contrast to the cheaper methods of sowing or natural regeneration practised in large forests. The latter methods are chiefly suitable for large areas of woodland stocked with one or two indigenous species and on land which has been kept clean by thick crops of trees. In small plantations which have to be established on entirely fresh ground sowing is invariably a failure, unless under exceptional conditions of soil or with seed that produces strong vigorous seedlings. This system of planting, on account of its expense, naturally suggested the propriety of affording full protection during the early stages of growth, and fencing was one of the first and foremost measures generally regarded as essential in British planting operations.

The practice of fencing marks off, in a way, the intensive or artificial system of forestry from the extensive or natural system associated only with large areas and may be regarded as the basis of woodland protection in the United Kingdom. In the absence of fencing no other measures can be taken with any guarantee of success, bearing the fact in mind that live stock, including rabbits, are almost universally present in the vicinity of every wood (the few exceptions merely proving the rule) and must be excluded if success is to be attained.

While adding greatly to the initial expense of forming a plantation and also to its upkeep at later periods, the necessity for fencing points to the desirability of taking every care and precaution in the formation and management of woods, so that heavy crops of timber may compensate as far as possible for the heavy initial outlay. In addition to fencing, many protective

measures might be adopted which in too many cases are neglected or ignored. Fire, wind, attacks of insects and fungi, &c., are amongst the more common forms of injury to which woods are exposed, and although many plantations may arrive at maturity without suffering from any of those means of injury, others are from time to time destroyed through the lack of a few simple precautions.

To the average woodland proprietor the question of protection resolves itself very much into one of expense. To carry out every precautionary measure which the forestry enthusiast may advocate might lead to greater losses than the entire neglect of all. The most rational course to adopt would be that of taking the various circumstances into account in each case, and where special dangers threaten, to take special precautions against them. The whole question of woodland protection, as with many others of a similar kind, is based rather on common-sense action than on a practice of following blindly any set rules or maxims, the appropriate character of which vary in individual cases. A fair knowledge of the causes of damage or the conditions which lead to attack is an essential preliminary before any steps are taken to prevent or remedy the ills to which woods are liable, the details of which cannot be dealt with in this article but will be described in future issues of this *Journal*.

A. C. FORBES.

AN INVESTIGATION, IN CO. WEXFORD, OF A DISEASE IN YOUNG CATTLE.

FINAL REPORT.*

Some few years ago it was brought under the notice of the Department that a serious mortality in young cattle, characterised by wasting and scouring, was prevalent in County Wexford. After some preliminary inquiries the Department decided to investigate the matter, and in the autumn of 1903 a suitably equipped building was established near Wexford for the purpose.

A report on the first season's working was published in the issue of this *Journal* for October, 1904.

First Report. The report dealt with the history, extent, symptoms and probable cause of the mortality. The opinion was then advanced, and is still retained, that the cause was ascribable to an invasion of the fourth stomach by large numbers of parasitic worms (nematodes), a description of which was given. The high death rate and the unsatisfactory way in which the disease yielded to treatment were pointed out.

In a second report, published in the issue of the *Journal* for October, 1906, an account of further experiments in treatment and prevention was given. It was shown that very poor results were obtained from medicinal treatment but that the results of certain field experiments, which were described in detail, seemed to indicate a reliable means of prevention. This consisted in *keeping the calves by themselves for their first year on fresh grass*, or as an alternative, if no fresh

The Preventive Measures Recommended. grass was available, *top-dressing an old paddock with lime or salt*. Although this line of prevention gave most promising results, the trials, however, were of a more or less tentative character, and it was therefore decided to renew the experiments on a number of farms where the disease was prevalent. For this purpose eight farms were selected, and as no fresh grass paddock was available on any of them, the Department agreed to supply the lime or salt for top-dressing, the farmers agreeing to observe the following conditions:—

Experiments on Infected Farms.

- (1.) "The calf paddock, from the day on which the dressing of lime or salt is applied, is not to be used by any

* For Interim and Second Reports, see *Journal*, Vol. V., No. 1, p. 48, and Vol. VII No. 1, p. 17; and for a Report on the same subject by Professor Mettam, of the Royal Veterinary College for Ireland, see Vol. VI., No. 3, p. 460.

other animal (horses excepted) but the calves used in the experiment."

(2.) "The calves from the time of birth until they are put on the dressed paddock to be housed."

(3.) "The calves not to be allowed to mix with any other cattle."

These experiments were commenced in the spring of 1907, and were carried on throughout that year and until the early summer of the present year. With the exception of the observance of the above directions, the animals were treated in a similar manner to that of preceding years when the mortality prevailed.

The results, which are shown in the appended Table, supply

Results of the Experiments.

further evidence going a long way towards firmly establishing the utility of keeping the calves by themselves and on "clean" pasture during their first year. In all, ninety-two healthy calves were reared on eight farms which in previous years showed a death rate from the disease averaging 30 per cent. of the total number reared.

Farmers who suffer loss of their calves from the disease are therefore earnestly urged to give a trial to the simple and inexpensive treatment referred to above—and also in the Department's leaflet No. 77—with the confidence that the results will be highly satisfactory and convincing.

Name of Farmer.	Address.	Average Number of Calves reared each year.	Average percentage of Deaths per annum from Scour and Wasting during recent years.	Topdressing used and Quantity applied per Acre.	Number of Calves reared during Experiments.	Number of Deaths of Calves from Scour and Wasting.
Mr. Doyle, ..	Cottage, Tagoat, .	20	30%	Salt, about 14 cwt.	15	Nil
Richard Codd,	Ferry carrig, Wexford,	14	36%	Salt, about 15 cwt.	13	Nil
Mr. Lyons, ..	Craanford, ..	16	50%	Lime, about 3 tons.	14	Nil
Jas. Kavanagh,	Island,	12	An odd case only.	Lime, about 3 tons.	11	Nil
D. Kennedy, ..	Island, Middle, ..	12	15%	Lime, about 3 tons.	10	Nil
Jer. Kinsella,	Ballydarragh, ..	14	28%	Lime, about 3 tons.	11	Nil.
N. Howlett, ..	Ramsgrange, ..	8	50%	Lime, about 3 tons.	12	Nil.
Rev. J. Murphy,	Craanford, ..	4	25%	Lime, about 3 tons.	6	Nil

THE FARMER AND THE LABOURER.

A TALK WITH LABOURERS.*

BY

T. P. GILL.

[*An Address to the North Tipperary Land and Labour Association, in the Town Hall, Nenagh, May 17, 1908.*]

Your invitation, which was conveyed to me with many kind expressions by your Secretary, asks me to speak to you to-day of "your prospects, your duties, and your shortcomings." This request has touched me. That a body of men should ask another man to come and speak to them about their shortcomings—well, that makes one humble. It is a noble thing to acknowledge that one has faults, and openly to ask for help to correct them. It is more: for, whether in men or in nations, when it is not mere self-abasement, which is hardly better than mere self-satisfaction, it is the prime requisite of advance to better things. I am glad that you have spoken of these things, of duty, of shortcoming, and of the future. They are great common questions for us all, farmers or labourers, or whatever we may be. I can only say that if I respond to the simple trust with which you honour me, by speaking frankly and simply about duties and shortcomings, as well as about your prospects, I am sure you will not take it that I imagine I have no faults of my own to correct, or that I speak from the spirit of what is called a superior person. And you here know enough of me to accept me as, at any rate, an honest friend and respecter of the labouring class, with no purpose in my mind in what I say—whether you agree with it or not—but to help you to promote your welfare, and, through your welfare, that of our country.

Let us begin then upon this point of duty and shortcoming, for it is the top and the bottom of it all.

Interests of Labourers and Farmers are one. I have been recently talking to farmers,* as you know, and I spoke to them for you.

The farmer, taking him as a class, has many shortcomings, and he must correct them if the lot of the

* For "A Talk with Farmers," see the issue of the *Journal* for April, 1908, Vol. VIII., No. 3, p. 409.

labourer is to be improved, and if his own lot is to be improved, and if he is to do his duty to his country. Now, the same is true, word for word, of the labourer as a class—if his own lot is to be improved, if the farmer's lot is to be improved, and if he is to do his duty to his country. I might use a stronger word than improved, and say—if both classes and the Irish nation with them are not to be dragged down into bankruptcy and ruin. Now, the first shortcoming that must be corrected is this: it must be got into the heads of both classes until it becomes one of the most prominent and living ideas there, that their interests are one. They are mutually dependent classes, neither of which can exist, much less thrive, without the other. With this idea rooted firmly in their mind, they must proceed to adjust their relations with each other. They must pull together and think of and work for each other's welfare. I do not mean that their relations are to be those of a sort of upper class and a sort of lower class. No. The basis of their relations must be a fair and dignified exchange of service, the labourer being a free man, selling his labour at a fair wage, each respecting himself and respecting the other. Now, what do we see? Are the labourers and the farmers, speaking of them as classes, pulling together? I fear all is not quite as it should be in this respect. From each class you hear bad things said about the other. There is, in some districts, a sort of ill-will growing. This is the danger, the national danger, which I perceive. Nothing would be more disastrous for the labourer and for the farmer, and for this poor country, which depends so much on both, and which has been trying to do so much for both. My friends, I know not what ideal you set before your minds as a class for the future, though it is probable that you do like so many others in this country who just drift on, and do not trouble with a definite ideal. But, without prejudice to any schemes for more perfect states of society, we can deal with certain great and abiding realities which we have always with us; and one of these realities is that so long as agriculture continues, one might say so long as grass grows and water runs, the mutual dependence of farmer and labourer is bound to continue. I am speaking of them as classes; the farmer and the labourer may sometimes shade into each other, as they do in some places; it is all the same, the dependence one upon the other, must continue. If there ever came a change which would obliterate that bond and substitute something else, some regimentation of industry

or the like, it would be a change for the worse in every way. But no such change will come in our time, and I hope will never come. Agriculture is the oldest human industry, and this question of the farmer and the labourer, the yeoman and the husbandman, is one of the oldest of social and economic questions, which persists through all agrarian vicissitudes. The old bond will remain, and must be strengthened; and, in the main, the improvements which the Irish labourers and farmers are going to bring about in their lot in the future will not be something new and unheard of, but something old, certain qualities, and powers and ideas which we have lost, and which we must recover from the past. There will be something new, of course, and one thing in especial which is precious. That precious new thing is the new quality of human freedom and dignity that the labourer did not possess under feudal systems, which he, as well as the farmer, to-day enjoys, and which places him on an equal footing before the law with his fellow-men. Labourers and farmers, let me repeat, have common, not antagonistic, interests. That is the first thing to be realised. If I may put it so, the question between them is not one to be fought out, but one to be worked out.

Now, let us look for a moment at some of the farmer's shortcomings, and at some of the grievances **Some of the Labourers'** which the labourer thereby suffers. You **Grievances.** could tell me these shortcomings better than the farmer; and he could tell me yours better than you. It is wonderful what a gift we all have for knowing what is wrong with our neighbour. But briefly here are some of the main grievances against which the labourers complain, and rightly complain. Not enough employment on the land; what there is of it irregular and uncertain; the earnings of the labour insufficient to give a decent standard of comfort; a supply of nourishing food for a man and his family almost impossible to obtain. I might add the question of housing, but we will suppose that question to be getting dealt with by the Labourers' Acts. The other difficulties are more serious.

Before we consider wherein the labourer, in his turn, may fall short, let us consider the direction in which **The Labourer's Demand** he is to look for an improvement in the state of things just described. Let us consider his rights before we consider his duties. What should he aim at? What should be his demand? His demand should be, before all

and above all, constant and regular employment. Secondly, he should get a return from his employment, in cash or in kind, or both—and preferably in both—which would enable him to bring up his family in health and comfort. Thirdly, he should have a decent house, and, where he is not living on a farm, a plot to give him vegetables and enable him to keep some fowl and a pig. These are the real things to be desired for the labourer—regular employment, a fair wage, and a good house—these and fair facilities to assist the thrifty man who has saved money to acquire a farm of his own. All else is fallacious, save for the exceptional man, to be found in every class, for whom no laws can be laid down, and whom no description can fit. And if matters are rightly worked out in the agriculture of this country, so that the labouring man will be provided with these things—and they must be so worked out if the country is to thrive, the salvation of the country depends on it—then I say, with these things secured to him, and many other things, such as sound and cheap education, which better administration will bring within his reach, the rural labourer will have an honourable and, in many respects, an enviable position in the country. To attain that position is an object of worthy ambition for him; and to help him to attain it should be a duty with every earnest friend of Ireland.

Constant employment in a right state of things, that is, in conditions of fully developed agriculture, must
Constant Employment. for the bona fide agricultural labourer be employment all the year round on the land itself; not part of the year on the land and part on the roads, or at something else—but all the time at the work of the farm. That is the ultimate condition to be desired. But you have not that state of things available in this country yet, except for a small minority of the labourers, and in good, plucky tillage districts like Cloughjordan and Borrisokane. You have, however, one great advantage in the meantime for both farmers and labourers in this county. Your excellently administered system of direct labour on the county roads ought to arrest definitely the exodus of labour from the county, and tide North Tipperary over the transition period until its agriculture reaches fuller development. It ought, besides, to have an incidental good effect on the character of the men through the training furnished by its strict discipline and its rewards and encouragements to steady, intelligent and conscientious workers. I understand the system is

being extended, so that henceforth the bulk of the labourers in the county will be secured employment throughout the winter, and will be available for the needs of the farmers at the other seasons. Thus it will be no longer open to the farmers to say that the labour is not there; nor to the labourers to say that the employment is not there. Between them they can begin without difficulty the task of putting more labour into the land, and leading to intensified agriculture. When we have advanced some way upon that road, when we have winter dairying, when the farmers are raising crops for fodder for their stock and for food for their own and their labourers' families, when you are actively producing the highest class requirements of the breakfast table, fresh cream, butter, bacon, eggs—a class of production, by the way, in which, no matter how busy her man is on the land, the labourer's wife with her fowl-run and her piggery, can take a share—when co-operation enables all this work to be organised with the highest efficiency, and permits of all classes participating in its benefits, then the demand for labour all the year round on the land itself ought to be such that the direct labour army on the roads will be hard set to recruit itself. When farming is practised like that, the agricultural labourer becoming again what he ought to be, a worker of the highest skill and technical knowledge, he will regard himself as wasted on road work. The road army will then become a self-contained unit—and a most valuable unit it will be, especially if the work of maintaining local woods, as recommended by the Forestry Committee, is to be done by the County Councils. It is now a sort of emergency corps, trying to save the situation for both the farmers and the labourers; not to speak of the county rate-payers.

One point more on this question of constant employment, and it must be only a passing reference. I am
The Size of the Plot. saying that the agricultural labourer, if he himself is to attain the best position, and if the best results are to be got out of the land, must be employed all his time on the farm, and that even employment on the roads, though it be in the winter time, is an interference with that scheme which makes it fall short of what it ought to be. But if this be true of road work in the winter, what about the plan which is sometimes suggested—I admit it is a suggestion only made when the alternative

I am describing is not available, nor indeed any other alternative—the plan of enlarging the labourer's own plot up to three or four acres. If a man is to get any good of four acres he must give most attention to it at the very time when his labour is most in demand for the farm. A man who goes in for a plot of that size under the present conditions of agriculture in Ireland, even in the best districts, falls between two stools. He can neither be a farmer nor a labourer, and must make a poor case of it. Of course, again I am not speaking of the exceptional man. I am speaking of the average or normal man, and the actual or probable facts we have to deal with. A labourer, without interfering with his constant employment, can handle very well a garden of an acre or less—though too many of these little acres have I seen without a stroke of a spade in them, as much of a prairie within their four ditches as if they were a ranch in Roscommon. A great deal more can be made of these gardens than is being done.

Let us now consider for the moment the question of the fair wage. Here we get at once into the vicious

A Vicious Circle.

circle. The farmer says the labour is poor, and not worth even what he gives for it; the labourer says the pay is poor and the employment casual, and the business is not worth putting his heart into. And so it goes round. The farmer blames the labourer, and the labourer the farmer; and, as we say in the country, "it's between them it is." Both suffer, and the nation suffers, and the taxpayers and the ratepayers suffer, and the people in the town suffer as well as the people in the country. Unfortunately, there is only too much truth in the mutual recriminations of both these classes. Happily there are farmers and labourers in Ireland to whom this does not apply. There are farmers who give good employment, and labourers who, in return, give good work. And, happily, these are the farmers and labourers who are most successful. Happily, these exist, for they stand out to prove for us that we are dealing with practical realities, and not with fond imaginings, in the reforms we are discussing. You know, my friends, that the country at large, which, as I said recently in talking to the farmers, has gone into pawn to put them in a good position, and which is doing so much for the labourers, too, is an interested party in seeing that both these classes do their duty to each other and to the land. Do you know that the

country has already furnished over three millions and a half of money to provide the labourers with cottages and plots, and I am glad to say it is going to furnish a good deal more. But do you know, besides, that the ratepayers and the taxpayers pay more than one-half of his rent for him. Forgive me for reminding you that there are others to be thought of besides labourers and farmers. The country, being satisfied that the remedy is available, will see to it that it is adopted. The remedy is clear, and may be stated in a phrase. Let the labourer give good work, and he will get good employment; let the farmer give good employment, and he will get good work. Set that vicious circle moving in a positive instead of a negative direction, and it will become a beneficent and a fruitful circle instead of a destructive one.

What do we find in good districts at the present time? We find that good labour is well paid, and if you think of it you will realise that that is the case here in your own county. There was an inquiry under the Labourers' Act recently

Wages and Work.

in Borrisokane, and it came out—and I was glad to see it—that quite a number of labourers in trying to qualify under the new Act found it hard to prove that, between cash and kind—such as milk, turf-bank, manured potato ground, etc.—they were earning less than the value of even 15s. a week. Of course, these labourers were the cream of the district; and that is my point—these men were paid a higher wage than the average. And this is a tillage district, a district, too, where the land is the poorest and lightest in the county—and that is another point. Notwithstanding the poor land you have the fact that just because tillage is practised there the labourer is well off, and the farmer can afford to pay good wages. If you inquire amongst large farmers who employ many hands, you will find that here, as elsewhere, they gauge the wages they pay according to the quality of the work they get. I do not want to mention any names, but I know one gentleman in this county who gives as high as 18s. a week and a house to his best man. Now, what does he pay that 18s. for? Is it for mere work with arms and hands? Is it for mere eye-service? He pays it for brains and he pays it for skill, and he pays it for character—for the interest that man takes in his employer's business, for his thought, his dependableness, his trustworthiness. That is what commands

good wages, and will always do so. The employer I speak of grades the wages he pays down as low as 10s. a week for men who are not able to handle horses and implements, who have hardly any skill, and whose trustworthiness is, perhaps not their strong point. This is only commonsense and the operation of the universal law. A man who can only work with his hands at weeding and filling manure into carts and so forth cannot expect to be paid as much as a man who is a good ploughman, who is skilled in the use of agricultural machinery, in the management of horses, in the care of breeding stock, and in all the varied arts and lore which a high-class agricultural labourer possesses. Neither can a man who will only work when his employer's eye is on him, and who will begin to idle the moment his employer's back is turned, expect as much as the honourable, diligent, trustworthy man, who not only works but thinks for his employer, and can be regarded by the farmer as his friend. I say this is only the universal law of supply and demand. It is the same in every calling. The good man is at a premium. The unskilled, the half-skilled, the inefficient worker is the drug in the market. This is more true of agriculture than of any other industry, for in agriculture the land is always there waiting for the labour. If you will examine those crises in agriculture, when tillage has declined and grazing has increased—for the decline in tillage and the grazing mania are not a new phenomenon by any means—you will find that apart from the influence of bad land laws or sudden falls in prices or other exceptional cataclysms, such decline was generally started, in the first instance, by a dearth or a deterioration of the labour supply. The farmer is not cursed with a double dose of original sin. It is not through pure "cussedness" that he refuses to put more labour into the land. He has been driven to that course by a variety of causes, and amongst them is the ground for that complaint of his about the labour. It is not in Ireland alone that this has happened. They have the same problem in some other countries. The farmer in Ireland has been driven to dread tillage so that only the most intelligent and courageous farmers go in for it. If the farmers have that dread of tillage still, it is partly through ignorance and lack of enterprise, as well as other causes; but it is also partly through the existence, to some extent, of those things they complain of about labour.

Let us look at this complaint for a moment, for it is a very

**The Farmers'
Complaints.**

serious question, and must be squarely faced.

Yes, there is no doubt that, speaking generally, the quality of agricultural labour is not what it was. And, again, let me say for your consolation that this is true not of Irish labour alone nor of the labouring classes only. It is part of the deterioration of the age. In many ways our fathers and our grandfathers were better men than we. And this age, which is like a badly-reared son disrespecting its parent, if it is to be cured of its ills, will have to learn more than one lesson from the ideas and the character of the men who went before it. There is a good excuse for the labourers of the present day. Do not suppose that in pointing out these things I am blaming them. The decline of tillage itself has become in turn one of the causes why the agricultural labourer is less skilled—there being fewer opportunities for him to learn his business—while his deterioration in other respects, I say, is only part of something he shares with other classes in the country. I do not want to dwell on this topic long; but I want to bring it home to you for a moment. You know perfectly well to what I refer. Consider, for example, the case of a struggling farmer who has a hard, anxious effort in the round of the year to make both ends meet. And consider the labourers who come to work for him on a fine day, when he is trying to save his crop, and before the day is done, on some heedless or unthinking pretext, take a notion to quit the field, and leave him there with his crop on the ground. The next day it may rain, and that may be the last chance of saving the crop for the season. More injury will have been inflicted on the farmer by that piece of inconsiderateness than the work of these labourers would be worth him in the whole year. Consider the injury an unskilled or a careless labourer can do to young horses and to breeding stock. You know the difference to a tillage farm between the man who is able to handle a pair of horses, who can get almost any sort of a horse to work profitably, and the man who neither knows nor cares about the ways of a horse. Some men of this type will spoil a young horse for life if he falls into their hands. Think what loss—what money taken out of his pocket—all this means to the farmer. How many lambs that might have been saved with skill and care is the farmer often obliged to lose in a yearning time through inefficient or neglectful help? I will not speak of the

drink question; but you know that there is too much of that trouble too. Can you wonder that men who have had experience of such labour as that speak bitterly about it? Do you know that, up at Ballyhaise, one of our agricultural stations, we have had, most reluctantly, to introduce a milking machine for the dairy cattle there? This is because the girls can no longer be got to do the milking, for the deterioration to which I allude is, unhappily, not confined to one sex any more than one class. There is something one specially regrets about this instance of it—for the best of all milkers, the one who can get most milk, and get it most kindly from “Drimindú,” is the one who has been the theme of song and idyll from time immemorial, the *cailín deas cruídhíte na mbo*. With her, if she is to go in the wreckage of an unworthy age, will go a point of grace and poetry from rural life. Let me tell you another piece of our experience. The greatest pride of the true farm labourer, in places where agricultural labour is respected, as it ought to be, as a great and noble calling, is in the appearance of his team of horses. He delights to treat the horses as his friends and his companions. His grooming and care of them is one of his chief pleasures; and leading them forth in the morning, with their coats shining, and every bit of their tackling polished to the highest degree, is a sort of glory in which he daily rejoices. Now, what do you think of labourers who cannot be got even to groom their own horses, who will not come into their work until the feeding and grooming has been done by others that have to be employed specially for the purpose? My friends, agriculture in Ireland cannot be got to pay until labour of that sort is substituted by something very different. I will dwell no more on this topic. I simply point the thing out, and ask you to think over it. You can fill up the blanks in the picture a great deal better than I can.

Now, there are three things I should like to set before the labourer. One is professional pride—to raise up his notion of his calling and his own self-respect as a skilful workman and worthy member of society. From that will follow most of the benefits he can enjoy. The second thing is future opportunities for the thrifty labourer and his children to advance upward to greater prosperity. The third, by no means the least of the three, is the question of his dietary. I will say a word on each of these heads.

And first, as to professional pride. The Irish labourer, and the Irish farmer, too, instead of being almost ashamed of it, as both of them are, have to realise that they should be proud of their profession. Agriculture is as high a calling as any profession or industry or trade. Indeed, it is higher than most, and when rightly understood with educated minds, and when relieved of the grinding conditions by which human perversity is able to abase the noblest uses of life, it is more attractive than most. It has to do—

“Not with the mean and vulgar works of man
But with high objects, with enduring things,
With life and nature.”

The deepest science and the nicest skill can be brought to its service, and even the labourer can, and should understand how that science and skill are to be applied. Cultivate a sense of this truth, and take at the very least as great an interest and pride in your work as the high-class artisan takes in his work. If you do this, I say, the greatest benefits will follow. You need not go outside your own county to see how an agricultural labourer who has skill and character is appreciated. A farmer who knows his business, and who has such a man in his employment, will not let him go at any price within reason. Such a man commands both good pay and much respect in the district where he is known. He builds up, by his devotion to his business and his knowledge of his business, quite a reputation for himself—a reputation which is an asset carrying a money as well as a moral value. If you increase the number of men of this type in a district—and you can do this yourselves, each man by his own resolution to improve—you will create around you tillage and thrifty agriculture as if by magic, and you need envy no man's lot. Just work the thing out in your own minds. Even under present conditions a labourer of this type, in constant employment, as he is bound to be, and especially if he have children who are beginning to earn, can become in many respects a better-off man than many a farmer with even twenty acres of land.

Consider some of the things which a skilled agricultural labourer ought to know and be able to do.

**The Lore of the
Labourer.**

To describe them all would be impossible here; but let us glance at some of them. He ought to have a knowledge of stock and horses and all the farm animals, and be able to handle them

with art and sympathy, getting the best work out of them in health, and giving them the best help in illness. Yes, he should be even able to talk with them, and to understand their language when they complain in their ailments. Between him and a sick cow, or a horse, there runs a current of understanding which brings them instinctive comfort and relief, and makes him a real nurse to them. Then he should have a knowledge of all farm implements and machines. A plough to him should not be a plough merely. He should take an interest in understanding all about its mechanism, and the function of every part. Again, he should be a clever hedger and ditcher, and drain-maker and rick-maker and thatcher. He should have a knowledge of cropping, and of the treatment of land. He should know how to "humour" the land in accordance with the seasons or the weather. Skilled agriculturists know that the land is as sensitive as any medium in which art or skill can work; that it almost has a personality to the man whose instincts have been brought to the finest point by training and experience. Perhaps it is in the planning and organising of his work that the good labourer best shows his brain power. How to plan it so that labour will go as far as possible, so that there will be no waste. To know how to adjust it to the weather, so that if a wet day comes he is not thrown on his beam-ends, but can be just as busily and profitably employed as in the field. All this calls out not merely intelligence, but the highest kind of intelligence. To exercise that intelligence is the birthright of the true agricultural labourer. The man who has been so developed at his great industry of agriculture not only makes himself secure and independent in his lot as a labourer, but can go much further. We hear a good deal about the agriculturists of Scotland, and certainly the highest farming in the world, I suppose, is practised there. Well, do you know that the farming class of Scotland is largely and continuously recruited from ploughmen and farm hands? These are men who, by thrift and saving and developed intelligence, get themselves to a point where they can rent a farm, and start in business. I inquired recently as to how far this process went, and I was surprised to learn the facts. I understand it is under the mark to say that 20 per cent. of the farmers of Aberdeenshire—that is, of the flower of Scottish farmers—were

originally farm workmen. And if you take in those whose fathers had been originally labourers, the proportion would be very much higher. When you think of it that is an astonishing fact. But it is also a most encouraging fact for the labourers of Ireland, before whom and whose children in better times, and with better methods, an equally bright future must arise. In truth, it may be fairly said that it is the labourer who makes agriculture what it is. These farmers, who were originally labourers, are educated men in some of the best senses of that word; and from their children comes a good share of that *corps* of educated men whose efficiency has made the name of Scotchman felt in every walk of life.

This brings me to another point: the opportunities before the labourer for development along such lines as these. In Scotland it is easier to get a farm than in Ireland, where history has determined that our land system should work out in a different shape. But means must be found when tillage has developed here, and when our labourers are producing many men of the type of the thrifty and highly-trained Scottish ploughman, and it will not be hard to find such means in one way and another, for facilitating the best of our labourers to enter the farming class. When the transfer of land is simplified and registration of title is worked on a better plan than it is now, some of the difficulties of passing from class to class will be lessened. We have too much of this rigid class division in Ireland, and the social relations of these rural classes of ours must be readjusted as well as other relations. A farmer in a free democracy like Scotland or Denmark would not dream of regarding himself as a better man than the independent and educated labourer, who contracts with him on equal terms for an exchange of benefits. We must get to that point here in time. And on the question of facilitating labourers in getting farms, I am glad to say that a body of farmers, my friends the Tipperary Farmers' Society, have taken the initiative with some interesting suggestions. They have discussed a scheme under which labourers who have had a certain number of years' service, and prove by tests that they possess a practical knowledge of manuring, cropping, feeding and rearing animals, management and repair of agricultural machinery, and so forth, and who receive an unblemished character from their

**Opportunities for
entering Farming
Class.**

employers during the period of their service, should get portions of untenanted land, or be facilitated in buying small farms when there are any in the market. I say nothing of the merits of the scheme, which I do not think has been worked out in detail, and which I have not had the opportunity of closely examining. But I mention it as showing the desire of some of the most broad-minded and enlightened of our farmers to co-operate in soundly advancing the welfare of the labouring class. Such co-operation between the two classes will prove the best of all solvents of questions like this, and I hope it will be promoted more and more.

In the meantime there are some other aids to advancement of which the labourer can avail himself.

**Other Aids
Improvement.** Sound education is now being brought more and more within his reach, and the “educational ladder,” as it is called, will open the way for his as well as every other poor man’s son who has exceptional talent, right up to the university. Our county schemes of agriculture and technical instruction take a good deal of note of the labourer, and can help in various ways in bringing him and his children forward—especially such schemes as the horticultural, the poultry, the domestic economy schemes, and the schemes for the best kept cottages and plots. I am glad to see that in several districts ploughing matches are beginning to appear again. I should like to add to these schemes prizes for other forms of skilled agricultural labour, and I hope that feature may yet be introduced into our county work. There are valuable ways in which the labourers can help themselves. One of the best of them is organisation. You are organised in a certain form already, but I am speaking now of organisation in the form of the friendly or benefit society for making provision for sickness or old age, and in the form of the co-operative bank. This is a line of improvement for you to think over. I can only just mention it to-day. And since I am referring to you in your organised capacity, may I mention one other thing; may I urge upon you the deep importance, when you elect men from your own ranks to serve on our public boards, of choosing as your representatives upright, honourable, and worthy men who will have a due sense of the responsibility and dignity attaching to these positions of public trust.

I said I would conclude with a word about the labourer's

**The Labourer's
Dietary.**

As a rule, he is not fed properly at present, and neither is the farmer, for that matter; and if he is to do the best work he must be fed. If his children are to grow up strong, healthy men and women they must be well fed. Both classes must learn what a healthy dietary is, and our domestic economy instruction must help them to do that. And both must learn how to produce from the land the material for a healthy diet; and I hope some of our other schemes, agricultural and horticultural, will help them in that, too. The chief thing is for the farmer to produce off the land food for his family and for the labourer's family, and for the labourer to secure that almost in every case he receives part of his payment in food. Always, at any rate, he should receive part of it in milk. It would be better for the farmer and the labourer that the latter were provided with a manured potato patch on the farm, and not obliged to raise potatoes on his plot. The plot should be used, in the main, as a vegetable garden, and when the labourer learns through our horticultural instructors how to grow successfully a large variety of vegetables, he will find the plot supplying him with one of the most valuable elements of his dietary. If he uses the plot to the utmost as a vegetable garden, and also for keeping some poultry and a pig, it is wonderful what excellent results can be obtained from it. But with or without these results, the great thing, where a plot exists, is not to let it become a tie or an interference with the labourer's work for others.

Now, I have delayed you a long time, and I have only to say,

in conclusion, that the real means of im-

A Good Model.

provement lies in your own hands. The farmers have to move as well as you. But you must not be waiting for them to move before acting yourselves. Each class must do its own part, and each man, without minding whether the other class or the other man does his part or not. It is astonishing what happens when men adopt this rule in life, and how others who have been waiting for a lead begin to follow their example.

And here let me say a special word to the young men. You do not need to go to other countries for models from whom you can learn something to imitate. We have produced as good types here

in Ireland as any country, but circumstances of our unhappy history, which will not be in your way, prevented them rising and prospering as their merits deserved. There are few parishes in which there does not still survive an old labourer of this bye-gone superior type. To you young men, if you thought of him at all, he has probably only seemed just an old fellow, something out of date. The unhappy thing is that he is out of date. But he is something besides. Like one of those disguised saints in Irish legends, who came and worked among the neighbours like one of themselves without being recognised, he is the possessor of graces which those around him do not know of. I charge you, young men, regard such an old man reverently while he is with you, and try and learn something of his secret. It is not his knowledge merely I commend to you, his extensive knowledge of his calling, his instinctive knowledge of life, but the whole character and spirit of the man—his perfect rectitude, his simple dignity, his fine manners. In the best sense of the word he is a gentleman. I have before my mind at the moment an old man like that. . . . He does not need to be watched while he is at work. But watch him; see him, for example, laying a hedge—an operation which I fear not many of you young men would know how to set about—and it is a lesson in technical art. Talk to him about life and conduct, about the common things that concern us all, and, I say it in all sincerity, one feels a better man. Where, by what mystery of tradition or race, did these old men learn to be like this? Is the gift which they inherit incommunicable to their descendants? Let us pray that it is not. And while they are still there, let us try and acquire it from them. Each of you, I repeat, can do something—something which is within reach of his right hand—to combat the degeneracy of the age and the adversity of conditions. It is for each man in his own person to act. Imagine what a change there would be in Ireland if each individual in the country were to become as efficient and worthy as it was in his own power to be. Simply to do this would be the highest patriotism. It would be truly making Ireland free.

MUTUAL LIVE STOCK INSURANCE IN FRANCE.

One of the features of French agricultural organisation which is most worthy of examination is the development in recent years of live stock insurance. In 1897 there were 1,469 societies, many of them being old associations, and in 1907 the number of live stock insurance societies had increased to 6,730. The system which has been adopted has thus rapidly extended. It is based on clear and simple lines, and for this reason a consideration of its main features and characteristics helps to bring home the fundamental principles which must underlie any sound system of live stock insurance. The particular forms and regulations will conform to the conditions of each country, but the principles are common to all.

The French system has developed from the sound foundation of the small local mutual associations, bound together for the purpose of re-insurance in federations. It has brought with it not only a cheap form of insurance against loss, but it has increased the general communal interest in the proper care of live stock and the prevention of loss by disease. In so doing it has strengthened and safeguarded in one important direction the position especially of the small farmer. The movement is already highly developed, but its still higher organisation is being steadily proceeded with.

Live stock insurance in itself is not, however, a development of recent date in France. One of the oldest forms of insurance in that country is that connected with live stock, and the importance of organising it on mutual lines was very early recognised. Provident banks existed long before modern legislation came to their support. The ancient *guildes* were themselves the prototypes of the modern "Syndicats Agricoles Professionels," and some of the mutual banks still flourishing in the last century were of very ancient origin. For instance, the mutual association of the Commune of Pr  ty (Sa  ne et Loire) had its origin in the statutes of the Confr  rie de St. Isidore, a religious confraternity, whose work included the insurance of all kinds of live stock. The age of the statutes of the society is clearly proved by the quaint religious language in which they are couched.

Again, there are the *consorces* or *cotises*, large numbers of which still exist, principally in Les Landes and the South-East of France. These institutions date back some fifty or sixty years, and they have served as the model for the mutual insurance societies of to-day. In contrast to the Confraternity of St. Isidore, the *consorces* only insured one kind of live stock—cattle or horses, but not both. Consequently there are often three or four of them in one commune, each having its own speciality. Thus, at the end of 1901 when the total number of mutual live stock insurance societies in France was 2,646, the number of *consorces* in Les Landes was 757, with a total membership of 37,408 persons, owning 71,486 head of live stock, insured to the value of 8,308,616 francs. In their primitive form the *consorces* are intended to repair losses caused by the accidental death of horses or cattle, without payment of any preliminary contribution. Should an animal belonging to a member die, its value is estimated by the members in good faith and subject to the control of all; then, at the end of the half year, the owner receives compensation, to which each member contributes in proportion to the number of cattle owned by him. The security of the *consorces* is based upon the fact that the members are all near neighbours, intimately acquainted with each other's affairs, and on the vigilant mutual control of live stock premises and cattle which it is thus possible to exercise. But although these societies were already so numerous in the department of Les Landes, where their good work was highly appreciated, they were still unknown to the rest of France, and not until some twenty-five years ago did the idea begin to spread to La Vendée and other neighbouring departments.

Besides these ancient institutions which were confined to Les Landes and certain places in the East of France, there were a few isolated organisations scattered through the country. There is still in La Vendée a federation of banks called "La Fraternelle," which was created in 1879; and there are records of the existence in the South of France, as early as 1770, of associations of farmers for the insurance of live stock. These banks, as well as the *consorces*, were regularly legalised by the Law of 1884, the law on which are founded the Agricultural Syndicates of recent years.

Attempts, too, were made from time to time by the large commercial insurance companies to organise the insurance of live stock, but without much success. The area of administration was too

large, the premiums too high, the working expenses too heavy, and the frauds too numerous. From its very nature, the insurance of live stock is peculiarly difficult; in order to be successful it must be subject to the most effective system of control, namely, that of the persons directly interested in the success of the enterprise. Herein lies the reason why the large insurance companies failed and why the small local societies alone could hope for success. In the latter the members all know each other, frauds are practically impossible, and expenses at a minimum, the insurer is at the same time the insured, and all are directly interested in the honesty of each.

In realising this, France laid the foundation of her admirable system of small local societies for the insurance of live stock.

The work of collecting and consolidating the live stock insurance societies scattered through the country was

The Agricultural Syndicates. mainly done by the Agricultural Syndicates. These were societies created under the Law of 22nd March, 1884, known as the "Law of Professional Syndicates," which legalised the constitution of syndicates or associations of persons following the same profession and having as their object "the defence of their economic, industrial, commercial and agricultural interests."

An Agricultural Syndicate may be defined as "an association formed by agriculturists, proprietors, farmers, farm labourers, and all persons engaged in occupations contributing to agricultural production, for the study and defence of the economic interests of agriculture."* The objects of these syndicates are of wide scope, and include the following: propagation of agricultural instruction, encouragement of agricultural experiments of all kinds, establishment of agricultural credit and insurance societies, purchase of manures, seeds and the like, and collection of information upon all matters touching the interests of the agricultural population.

The question of agricultural insurance was not at first actively taken up by the Syndicates; it was debated at their national congresses in 1894 and 1897, and the work of organising agricultural and in particular live stock insurance was formally taken over by the Syndicates, and some of the largest and most prosperous federations of mutual insurance societies in France owe their existence to them.

* Le Comte de Rocquigny: *Les Syndicats Agricoles et leur œuvre.*

Perhaps the most remarkable Syndicate in this respect, at least in the early days of the movement, was the Syndicate of La Sarthe. In the space of about three years, fifty mutual live stock insurance societies were created under its auspices, and formed into a mutual federation or union, to which the Syndicate itself allotted an initial subvention of 20,000 francs. In 1899 the value of the live stock insured by the 4,846 members then belonging to those societies was more than 5,000,000 francs.

The example of the farmers of La Sarthe was followed by others, and soon a number of similar federations sprang up in various districts.

The importance of the agricultural insurance movement, was early recognised by the State. In 1892, M. **State Aid.** Méline, speaking in the Chamber of Deputies, said that the question of agricultural insurance was closely bound up with that of rural credit, and declared that he placed the organisation of insurance only second to that of rural banks. In 1898 he, as Minister of Agriculture, was able to give effect to his principles by introducing in the Budget of that year a subvention of 500,000 francs in aid of mutual agricultural insurance societies, but of this vote less than 180,000 francs were actually handed over to those organisations that year. In 1901 the actual amount granted to them was 465,450 francs, and not till 1902 did the grants reach the sum originally allotted for the purpose.

The State, then, encourages the formation of co-operative societies for the insurance of live stock in two ways: (1) an annual subvention is set apart for the purpose in the Budget of the Ministry of Agriculture; and (2), the Law of 4th July, 1900, enacts that these societies shall be exempt from the various costly formalities and the stamp duties prescribed by law in the case of ordinary insurance societies.

In order to benefit by the Law of 1900, societies must—

1. Consist of farmers only.
2. Be administered only by honorary officials (though a small salary to a clerk is admissible).
3. Be worked for the object in view without any idea of profit for themselves.

The State subvention for mutual agricultural insurance societies was first included in the Budget of 1898. It then amounted

to 500,000 francs, but was afterwards raised to 600,000 francs, and finally, in 1907, to 1,200,000 francs (£48,000)—the figure at which it now stands under the head of "subventions to mutual agricultural insurance societies, cost of supervision, and control." This sum is expended in two ways:

(1.) In grants to new societies. In this case the grant is given as a right to all new societies, and is intended to defray initial expenses, and to form the nucleus of a reserve fund. It is proportionate to the capital insured, the number of members, and the working area of the society, which is usually that of the commune. It is never less than 500 francs. The Ministry of Agriculture, in allotting grants to societies, makes no condition as to their organisation or regulations, consequently both insurance companies, subject to the Law of 1867, as well as small mutual societies created under the terms of the Laws of 1884 and 1900, equally enjoy the benefits of these subventions.

The following was the scale of grants adopted :

500 fr.	for a society with less than 10,000 fr. capital.
600	„ „ from 10,000 to 30,000 „
700	„ „ from 30,000 to 50,000 „
800	„ „ from 50,000 to 80,000 „
900	„ „ from 80,000 to 100,000 „
1,000	„ „ more than 100,000 fr. „

Should a question arise as between two societies, equally important as far as amount of insured capital is concerned, preference in the shape of a larger grant is given to the society whose capital is most sub-divided, and which, consequently, consists of smaller owners.

(2) Grants made to societies already in operation.

These grants are intended to help societies to meet extra losses in times of epidemic sickness, by aiding them to reconstitute their reserve fund, upon which a heavy strain is inevitable in such cases. The scale of these grants is calculated on a basis varying from 15 to 30 per cent. of the losses suffered during the last financial period, taking into consideration the size of the society, the number of its members, and, above all, the share contributed by members themselves, i.e., the amount of their premiums and contributions. These grants are never less than 100 francs, and are larger in the case of societies showing a small amount of insured capital per member.

In order to be eligible for State grants, a society must be open to all farmers in the district, subject to the approval by the committee of their moral character and manner of keeping their live stock. A society which admits only members of the local Agricultural Syndicate, to the exclusion of those who are not members of the same, is ineligible for a grant. Certain forms are also prescribed under which applications for grants must be made.

CONSTITUTION OF SOCIETIES.

Formation.—The procedure followed in forming a mutual live stock insurance society is of the simplest. A meeting of farmers likely to wish to insure their stock is summoned. A form of regulations is submitted, discussed, altered if necessary, and adopted. The meeting of founders then proceeds to nominate the Committee, and the society is constituted. The regulations are then deposited at the *mairie*, and authenticated by the signatures of the President and Secretary.

Organisation.—The working area of the society is a restricted one, and, in fact, it generally coincides with the area of the commune, unless the latter be exceptionally small or contain very few cattle. The society is administered by a committee of about six members, elected by the general meeting. The committee elects its own president, vice-president, and secretary, who is also treasurer. None of the officers is paid. The mission of the committee is (1) to carry on an active propaganda, demonstrating the advantages of mutual live stock insurance (2) to value animals belonging to the members; (3) to exercise a careful control over the condition of insured animals, the care bestowed on them, and the sanitary state of their premises; (4) to receive declarations of accident or sickness, to proceed to the examination of sick animals and to verify losses; (5) to indemnify members for losses sustained. General meetings are held once or twice a year, when a report of the society's work is submitted.

Animals Insured.—The majority of societies have hitherto confined themselves to the insurance of cattle. A few include horses, mules, and asses, but in this case the transactions concerned with each species are kept quite distinct. The insurance of sheep and pigs is rarely undertaken. So far as is possible, the societies only insure animals which are healthy, and well kept, are in permanent possession of their owners, and are, therefore, subject to similar risks. Stallions and horses used exclusively for heavy carting and

threshing are not usually accepted for insurance. Owners who habitually undertake cartage for other parties or transport work other than that ordinarily connected with the farm, are sometimes insured on condition of receiving, in case of loss, one-half the compensation given to those whose animals are engaged in farm labour only.

The age at which animals may be insured is fixed in the regulations. Cattle are generally accepted between the ages of six months and twelve years, horses between six months and six years (sometimes up to twenty years), and asses and mules between the ages of six months and twenty years. Some societies require a guarantee that animals have been healthy for at least one month prior to admission. A maximum value is sometimes set—for example, 400 francs for cattle, 800 francs for horses, and 200 francs for asses.

Valuation of Animals.—On principle, societies only accept insurance of *all* the cattle or horses belonging to a farmer; they will not insure individual animals. This is to prevent substitution of one animal for another in case of accident, and to repress the tendency of owners to insure only animals exposed to special risks. The Committee decides as to admission and valuation of animals. Valuation is generally carried out by two members of the Committee, and is renewed every half-year, in April and October. The valuation takes place in the presence of the owner, and is made the basis of all compensation for loss. On a form made out in the name of each member, and drawn up in duplicate, each animal is entered separately, and minutely described, together with its age, number and valuation. This sheet is signed by the owner and by one representative of the committee after each half-yearly valuation. One copy remains with the owner and the other with the secretary of the society. When a member sells an animal during the course of the half-year, the subscription paid remains with the society, but if the owner buys an animal to replace the one sold, the animal is insured, on a declaration being made to the local office, for a value not exceeding that of the animal sold, unless the member pays, for the half-year commenced, the balance of the premium resulting from the rise in value of his cattle. Each member receives a book of regulations in which is entered the number and description of his stock, their registration number, value, etc. The book sometimes contains also instructions as to first aid to animals in case of accident or illness. In some societies animals are identified by a brand on their horn or hoof.

Special regulations are drawn up in most societies to meet local conditions, as regards the insurance of live stock only kept by their owners for a few months in the summer. Such animals are sometimes insured *en bloc*. The number of animals to be insured is fixed by the owners at the beginning of the season, and an *average*, not individual, value is set on them by the valuation committee. This insurance guarantees, within the limits of the number agreed upon, animals bought to replace others which have been sold; if, however, at a given moment, the number of animals exceeds that on which the amount of premium was based, the owner must at once inform the authorities of his commune, specifying in detail the additional animals. If this step be not taken, and if a loss occurs, the amount of compensation will be determined by considering the grazier as his own insurer for that proportion of the animals in excess of the number fixed as basis of the premium. Thus, an owner insures fifteen cows; later on he raises the number to eighteen; if he loses one beast he will be considered as his own insurer for 3/18ths of the loss, the society being only liable for 15/18ths.

Premiums.—The amount of the premium is based upon two factors: (1) the probable death-rate, and (2) the proportion of compensation fixed by the regulations. The death-rate varies according to locality. The average annual death-rate for the whole of France is 1.39 per cent. for cattle, but this general average cannot be used as a basis for local insurance. In some departments the average death-rate keeps below 1 per cent.; in a number of others it is in or about that figure, whilst in several it rises to 2 or even to 3 per cent. Moreover, though the average death-rate returned for a whole department might serve to estimate the losses that would fall upon a large federation of societies affiliated for the purpose of re-insurance, still in no sense could it be made the basis of the operations of one society considered individually. It has been observed that the variations in the death-rate of different regions in the same department are sometimes as great as the variations between the death-rates of different departments.

The death-rate in a certain locality cannot always be obtained. If this be so, a *trial figure* is adopted, and this can be subsequently modified if necessary.

The total loss incurred is not indemnified by the society; this is found to promote the better care of live stock. In practice the amount of compensation is generally from 60 to 80 per cent. of the

total loss. Given the two factors, death-rate and proportion of compensation allowed by the statutes, the amount of premium is easily found. Thus, if 1.25 per cent. be the death-rate of the locality, and 80 per cent. be the proportion of compensation allowed, the premium payable will be—

$$\frac{1.25 \times 80}{100} = 1\% \text{ of the value of the stock.}$$

Again, if the presumed mortality be 1.50 per cent. and proportion of compensation 70 per cent., we get

$$\frac{1.50 \times 70}{100} = 1.05 \text{ or 1 fr. 5 c. per 100 fr. of value insured.}$$

Special premium rates are fixed for animals subject to peculiar risks, such as dairy cows, brood mares, and horses engaged both in farm and industrial work.

Obligations of Members.—Premiums are paid in moities, at the commencement of every half-year. Some societies charge a small entrance fee (from 50 centimes to 1 franc) per animal insured.

Members are strictly bound to treat their animals well, and not to overwork them. The committee are required to exercise particular vigilance in this respect, to observe the manner in which live stock premises are kept, and, if necessary, to prescribe hygienic measures, which the owner of the premises is bound to carry out. A member may be expelled from the society for refusing to obey the orders of the committee. Some societies are empowered by the terms of their statutes to order preventive measures to be taken against the spread of epidemic diseases; for instance, they may require the inoculation of insured animals should any contagious malady make its appearance. Members of the committee have at all times free access to the premises belonging to members of the society. Should an insured animal fall ill or meet with a serious accident, its owner must immediately summon a qualified veterinary surgeon, whose instructions he must obey, and at the same time he must give notice to the President or Secretary of the society. If the animal dies or is condemned by the veterinary surgeon to be slaughtered as incurable, a declaration of the loss, giving cause and circumstances of the animal's death, must be made by the owner and certified by the members of Committee who carried out the valuation. This declaration must be forwarded, within forty-eight hours, to the office of the society. In the case of sudden death, the owner

must, within twenty-four hours, have the fact, and also the impossibility of giving timely treatment, certified by a veterinary surgeon.

The stipulations as to the duty of members in case of sickness or accident vary considerably in different societies, but they all tend to safeguard the interests of the society, and they show the care and method with which the French live stock insurance system is administered.

The veterinary surgeon sometimes takes part in the deliberations of the committee, and his fees and the cost of medicines are usually charged to the owner of the sick animal. Some societies, however, defray half these costs, with a view to encouraging their members to call in a veterinary surgeon without delay, and to give the best possible care to their sick animals.

The engagement as to membership is generally of short duration, being most frequently for one year only, but membership continues for another year unless due notice has been given a fortnight or a month before the end of the current financial period. In some societies a member who has received compensation for losses must continue his membership of the society for at least three years.

Payment of Claims.—The committee of the society, on receiving notice of a casualty, makes out the exact amount of loss incurred and of compensation due, according to the statutes.

In principle, compensation should not be paid before the end of the half year, *i.e.*, until the operations of that period have been concluded. In practice, however, as it is a hardship to keep small owners waiting so long for their money, an advance is made in such cases, equal to one-half or even two-thirds of the total amount, the balance being paid over at the end of the half year. Societies which have a sufficient reserve fund generally pay claims at once. Others borrow from agricultural banks. In districts where a system of re-insurance is in force, the departmental re-insurance bank comes to the assistance of the society in case of need.

Resources of the Society.—The resources of the society comprise the ordinary annual receipts and reserve fund, which is supplemented by any extraordinary receipts and surpluses remaining at the end of the year. The ordinary receipts are the contributions of members and honorary members and the interest on the reserve fund. Extraordinary receipts are entrance fees (if any), subventions, donations, and legacies. In addition to the State subventions already mentioned, communal societies sometimes receive an initial

grant from other public authorities. The General Councils of some departments, notably those of the Seine Inférieure, Haute-Saône, etc., include in their annual budget large sums to be applied to the development of live stock insurance. These funds are, as a rule, not given directly to individual societies, but rather to groups and federations of the same. Finally, some syndicates and other agricultural associations also grant sums of money to mutual live stock insurance societies.

The annual receipts are used to meet the ordinary expenses of each financial year. Working costs being little or nothing, the greater part of the receipts is naturally absorbed by the compensation paid to owners in case of accident. If the society is affiliated to a re-insurance bank, it pays an annual contribution to the latter, which entitles it to assistance in disastrous years.

The reserve fund is the safeguard of the future, and the best guarantee of the society's prosperity. It is, therefore, added to as often as may be, and the committee is usually very reluctant to draw upon it. In fact, when societies are not protected by affiliation to a federation a strict limit is placed to the amount which may be taken from the reserve fund.

A peculiar use is made of the reserve fund by certain societies in the South-East of France. When the financial situation permits, a part of the reserve fund is there applied to mutual aid, to be given to members who, on account of the illness of their animals, find themselves unable to perform certain urgent agricultural work. This work is then done by other members, and the cost defrayed out of the society's reserve fund.

The funds of the society are banked by the secretary in a savings bank or agricultural credit bank, and some societies invest part of their capital in what may be called trustee securities.

The second stage in the development of live stock insurance is

Re-Insurance

Banks.

that of re-insurance, or, as some French writers prefer to call it, "mutual insurance in the second degree." Provision for re-insurance is a cardinal feature of any sound system of live stock insurance, and the importance of guaranteeing isolated local societies against loss by forming them into groups or federations for mutual strength or support was early recognised in France. The number of re-insurance unions of this kind was forty-four in the year 1907, and the establishment of a central or national bank, which shall further incorporate all the federations in the country, is under consideration by the Government.

The procedure for establishing a federation of this kind is practically the same as in the case of the local society. The executive officers are appointed in the first instance by the general meeting, which consists in this case of the presidents of all the affiliated societies, and meets once or twice a year. If the federation is founded by an Agricultural Syndicate or a union of syndicates, then that body has a certain representation on the council of the federation.

In contrast to the local society, the federation gains in efficiency by having a wide sphere of activity, as the risks are then more evenly distributed.

The re-insurance bank or federation is the necessary complement of the small village or communal insurance association, but the lines on which, in France, re-insurance is organised vary considerably. In some provinces the system adopted is one in which the re-insurance federation, in return for a percentage contribution, accepts residuary responsibility for all liabilities of the local society. The local society in this case has, so far as its resources go, to meet the losses incurred, and if its funds are inadequate the payment falls on the re-insurance union. In other provinces a different system is adopted, and the re-insurance society, in return for a percentage contribution, bears part of all the losses of the local societies. In such cases the local society usually re-insures its payment of one-quarter or one-half of its losses, as the case may be. A contribution of one-fifth part of the premiums received by the local societies is regarded as a fair proportion in order to secure repayment of one-quarter of the losses incurred, or two-fifths of the premiums, where re-insurance of one-half of the losses is desired. This scale of charges has been adopted by certain co-operative federations in the South-East of France, where the plan has worked successfully for a number of years.

Great importance is attached to the early formation of a reserve fund; otherwise the federation may find it hard to surmount the difficulties inseparable from the commencements of such an institution. The State subvention given to new societies is also a help at this critical time.

Both the residual and what may be called the proportional systems of re-insurance have their advantages and disadvantages, and various intermediate forms of re-insurance have also been tried, but, on the whole, the proportional system is that which is most true to the principles of sound mutual insurance.

Without further entering here into the problem of re-insurance,

the differences thus indicated will suffice to draw attention to the great importance, in connection with any scheme of insurance, of the study of the best method of re-insurance, so as to secure, as far as possible from the outset, uniform practice on the best lines.

In addition, however, to these federations for re-insurance, or, "insurance in the second degree," the question of a still further degree of re-insurance through a national bank or insurance federation is under consideration in France. The object of this would be to deal with cases of serious epidemics among live stock. In ordinary circumstances, the work of re-insurance in France can be sufficiently guaranteed by the departmental or provincial federations of the insurance societies. But such individual federations may well be unable to meet the drain of losses due to the attack of an epidemic, and here the foundation of a central national institution is considered desirable.

The system of live stock insurance in France is thus not only rapidly extending in the number and size of its societies, but their internal organisation is becoming more highly developed for the work of mutual aid and co-operation. The system has its foundations in the small communal societies, and the care and good faith exercised by their members and executive committees, while the higher unions give to the movement the security and mutual support which is necessary in an economical system of live stock insurance. As might be pointed out, the movement in France is in many respects still far from being perfect, but its progress in recent years is one of the most remarkable features in French rural organisation, and its future development deserves to be carefully watched.

STATISTICS.

The following figures show the development of the system of mutual live stock insurance societies in France since 1897:—

Year (31st December).	No. of Societies.	No. of Members.	Capital insured.
			fr.
1897,	1,469	87,072	59,168,334
1898,	1,578	94,546	62,449,269
1899,	1,917	117,292	86,724,510
1900,	2,264	135,817	106,807,194
1901,	2,646	155,456	129,775,867
1902,	3,102	178,020	158,999,954
1903,	3,811	209,490	194,031,403
1904,	4,824	275,576	278,960,543
1905,	5,765	318,146	330,545,429
1906,	5,993	324,275	339,976,372
1907 (1st May), ...	6,780	355,600	384,895,435

The development of the re-insurance banks was as follows:—

On 31st Dec., 1898,	the number of re-insurance banks was	1
„ „ 1899,	„ „ „	2
„ „ 1900,	„ „ „	3
„ „ 1901,	„ „ „	6
„ „ 1902,	„ „ „	10
„ „ 1903,	„ „ „	14
„ „ 1904,	„ „ „	18
„ „ 1905,	„ „ „	29
„ „ 1906,	„ „ „	33
On 1st May, 1907,	„ „ „	44

The forty-four re-insurance banks recorded for 1907 have 2,200 affiliated insurance societies, and the amount of capital re-insured is 105,856,975 francs.

The State grants made to mutual live stock insurance societies since 1898, when provision was first made in the Budget of the Ministry of Agriculture for subsidising societies of this kind were as follows:—

Year.	Grants made to New Societies.		Grants to Societies already at Work.	
	No. of Grants.	Total sum Granted.	No. Grants.	Total sum Granted.
		fr.		fr.
1898,	105	60,800	196	82,750
1899,	340	197,850	286	80,350
1900,	348	177,200	385	110,500
1901,	387	245,800	543	194,450
1902,	401	265,800	639	234,600
1903,	672	445,000	511	179,400
1904,	918	456,350	676	216,700
1905,	966	411,900	839	297,500
1906,	613	366,800	1,046	370,600

Of the French Departments (87 in all), 38 have more than 40 mutual live stock insurance societies, Les Landes leading the way with 942. In the latest returns only one Department, that of Hérault, was without a single mutual live stock insurance society, but with that exception, and at the present rate of progress, this system of insurance will soon be within reach of every farmer in France who chooses to avail himself of it.

SELECT LIST OF PUBLICATIONS.

1. *L'Assurance mutuelle du Bétail*, by the Marquis de Marcillac, Périgueux, 1904.
2. *L'Avenir des Assurances mutuelles agricoles*, by the Comte de Rocquigny, Tours, 1906.
3. *L'Assurance mutuelle contre la mortalité du Bétail*, by the Comte de Rocquigny, Paris, published by the "Syndicat des Agriculteurs de France," 1906.
4. *Agriculture, législation nouvelle*, by François Carville, Paris, 1905.
5. *Les Syndicats Agricoles et leur œuvre*, by the Comte de Rocquigny, Paris, 1900.

TECHNICAL INSTRUCTION IN IRELAND.

[* * *The following is the sixth of a short series of articles appearing in the Journal on some recently established Technical Schools in Ireland. These descriptive articles relate to centres differing widely in population and needs, and it is believed that they will be of interest and value in view of future developments in towns in which permanent buildings have not yet been provided. The first three articles dealt with the Belfast Technical Institute; the Technical School, Ballymoney; and the Central Technical Institute, Waterford.* Those buildings were new. The series was continued by the publication of two articles dealing with buildings already erected but adapted to meet the needs of Technical Schools in Ballymena and Queenstown respectively.† The article below reverts to the class of School which was described in the first three articles, i.e., a School housed in a new building specially erected for the purpose.*]

TECHNICAL INSTRUCTION IN DUNDALK.

By A. E. EASTHOPE, -Whit. Exhib.,

Principal of the Technical Schools and Organising Secretary for Technical Instruction in the County of Louth.

PART I.—INTRODUCTORY AND HISTORICAL.

The commencement of the work of Technical Instruction as at present carried on in Dundalk may be said to date from the passing of the Agriculture and Technical Instruction (Ireland) Act of 1899. The details of the work are, from the very nature of the scheme, bound up with those of similar work carried on at other centres in County Louth.

Early in the year 1900 the Urban Council of Dundalk passed a resolution agreeing to avail themselves of the provisions of the Act relating to Technical Instruction, thus making it possible for them to formulate a scheme of Technical Instruction which would be suitable to the needs of the town. As a preliminary step, a Sub-Committee was appointed to draw up a draft scheme of proposed work for submission to the Department.

* See issue of Department's *Journal* for April, 1907, Vol. VII., No. 3, p. 457; for July, 1907, Vol. VII., No. 4, p. 652; and for October, 1907, Vol. VIII., No. 1, p. 11.

† See issue of Department's *Journal* for January, 1908, Vol. VIII., No. 2, p. 260, and for April, 1908, Vol. VIII., No. 3, p. 465.



MUNICIPAL TECHNICAL SCHOOL, DUNDALK.—Fig. 1.—Elevation of School.

The chief aim and function of the Technical School, as set forth in the draft scheme, was to provide its pupils with a sound technical training in the principles underlying the main industries of Dundalk, namely—(a) engineering, (b) building, (c) brewing, and (d) shipping, in so far as this was possible with the funds at the disposal of the Committee.

This scheme, with a few minor alterations, has been the basis of all subsequent work in the school. Up to the present it has not been found possible to do much more than meet the needs of the two first-named industries, in addition to the ordinary commercial and domestic work, but it is hoped that the work in the Chemistry classes will gradually develop on lines which will make it applicable to the third-named industry. The list of classes given in the table of Class Entries (p. 677), and the average attendances for last Session (see table on p. 679), will show what efforts have been made, and how far the work has progressed in the direction of meeting the needs of the town, as set forth in the original scheme.

After negotiations between the local authorities—viz.—the County Council of Louth and the Urban District Councils of Drogheda and Dundalk—and the Department, it was decided that, with a view to efficiency and economy in working, the administration of the Act should be vested in the County Council, which body should appoint a Managing Committee whose functions would be the carrying out of the provisions of the Act, in so far as they related to technical education, throughout the County of Louth and in the towns of Drogheda and Dundalk.

At a special meeting of the County Committee, held in September, 1901, it was formally agreed to proceed with the work by the establishment of Central Technical Schools in Dundalk and Drogheda, the sum of £100 per annum being allocated from the rates levied by the County Council under the Act towards the maintenance of these schools.

Other meetings took place, the basis of a workable scheme was

Committee. agreed upon, and a Committee for Technical

Instruction was constituted as follows:—

Representatives of the Corporation of Drogheda,	6	members
„ of the Urban District of Dundalk,	6	„
„ of the Urban Council of Louth,	8	„
Co-opted Members,	8	„
Total,		28

This Committee when first formed was simply a Sub-Committee

of the County Committee of Agriculture, but at a Meeting of the County Council, held in October, 1902, it was formally declared a Committee of the County Council, with full powers to administer that portion of the Act relating to Technical Instruction.

When auditing the accounts of the Committee, in July, 1904, the Local Government Board Auditor raised the question of the legal status of the Committee, as then constituted, on the ground that the members of the Joint Committee should be nominated directly by the several local authorities contributing to the scheme, and not by the County Council, as had hitherto been the case.

As the result of this the Committee was reconstituted, and composed of twenty-four Members, as under:—

Nominated by the County Council of Louth,	8	members
„ „ Corporation of Drogheda,	8	„
„ „ Urban Council of Dundalk,	8	„

This arrangement was approved of by the Department and the Local Government Board, and is that at present existing.

For some time previous to the formation of this Managing Committee, the County Committee of Agriculture and Technical Instruction had been acting under the advice and guidance of the Department, and a deputation, consisting of two members of the Urban Council of Dundalk and the Town Clerk, had visited several centres in England where Technical Instruction was being given on lines possibly similar to the requirements of Dundalk and Drogheda, for the purpose of obtaining information likely to be of benefit to the Committee in preparing the complete scheme of work for the county.

A detailed scheme of Technical Instruction was drawn up, which,

Scheme. stated on broad lines, was as follows:—

- (a.) Technical Schools were to be established in Drogheda and Dundalk, to which all residents in the county were to be admitted at the same rate of fees, etc., for the various classes.
- (b.) Money grants were to be made to Secondary Schools in the county for the purpose of enabling them to provide equipment for the increasing educational demands likely to be made upon them by the Regulations of the Department.
- (c.) A scheme of Itinerant Instruction in Domestic Economy and other subjects was proposed.
- (d.) Technical Schools for Girls were suggested.

The Committee then decided to appoint a Principal, who should

also be organising secretary for Technical Instruction in the county, and this appointment was made, in January, 1902. The Principal took up his duties in May, 1902, and by visiting the various workshops and mills in the urban districts, giving addresses on technical education, visiting the rural centres, and establishing preparatory classes, leading up to the actual work of the first teaching Session, endeavoured to explain the new scheme of technical education to all who were interested in its development.

Temporary premises were secured, and the necessary alterations were made to adapt them, as far as possible, to the requirements of the Department; teachers were appointed for the various subjects, and the work of the first Session was commenced on October 15th, 1902. The response to the educational provision made by the Committee was very gratifying, being much greater than was anticipated.

Classes were opened in the following subjects:—

Science.—Plane and Solid Geometry, Machine Construction and Drawing, Building Construction, Pure Mathematics, Practical Mathematics, Theoretical Mathematics, Applied Mechanics, Magnetism and Electricity, Steam.

Art.—Geometrical Drawing, Freehand Drawing in outline, Model Drawing, Drawing in Light and Shade, Elementary Design.

Technological.—Woodwork, Carpentry and Joinery.

Commercial.—Shorthand, Book-keeping, Arithmetic.

Domestic.—Cookery, Laundry Work, Dressmaking.

The accommodation at Dundalk was soon found to be inadequate to the demands likely to be made upon it; the Committee, therefore, in conjunction with the Urban District Council, decided to press forward the preparation of plans for a new Technical School building, and in due course these plans were prepared, and submitted to the Department for their approval.

The plans of the building, as approved of by the Department, were submitted to the Urban Council, and received their sanction. Application was then made by this body in the usual manner to the Board of Works for a loan of £3,675 for building purposes, and in March, 1904, a Local Government Board inquiry was held in Dundalk, with the result that the loan was approved of and obtained on the security of the urban rates, the capital and interest to be repaid in forty years.

For the purpose of bringing the total amount of payment of the sinking fund for the building within the compass of the proceeds of a 2d. rate, a sum of £275 was allocated from the capital or equipment funds at the disposal of the Committee, so as to reduce the amount to be borrowed from £3,675 to £3,400. The Urban Council advertised for tenders for the erection of the building, the one accepted being for a sum of £3,291. Building operations were commenced in July, 1905. The building was to be completed within eighteen months from the date of commencement, and the contractor finished his work well within the time specified.

The new building was formally opened by His Eminence Cardinal Logue on April 11th, 1907, and the classes transferred to it without any delay.

The Teaching Staff of the School consists partly of whole-time officers, engaged under the joint scheme for the county and purely Sessional Teachers, as follows:—

Whole-Time Officers.—The Head Master, teaching Electrical and Engineering subjects.

An Assistant Science Teacher, in charge of the Chemistry, Physics, and Preparatory Science Classes.

A Manual Instructor, giving instruction in Building Trades subjects and Practical Woodwork.

An Art Mistress and a Domestic Economy Instructress, giving instruction in Freehand and Model Drawing, Light and Shade Drawing, Design, Drawing from Still Life, &c., and Cookery and Laundry Work.

The teaching time of all members of the permanent staff is allocated to either Dundalk or Drogheda, according as their services are required, the Syllabus of Instruction being so drawn up as to equalise, so far as possible, the actual number of teaching hours at each centre in each individual case.

Sessional Teachers are engaged independently at each centre to meet its requirements under the scheme. Six teachers are employed in this manner at Dundalk for Geometry, Machine Construction, Steam, Mathematics, Arithmetic, Shorthand, Book-keeping, English and Dressmaking.

A clerk is employed in the Principal's office to assist in the general clerical work consequent upon the administration of the scheme.

The caretaker of the schools is a part-time officer, being in charge of the Public Library in addition to the work of the Technical Schools.

PART II.—FINANCE.

The following statement shows briefly the funds at the Joint Committee's disposal and the estimated manner of expenditure for the first Session:—

Income—

Local Contributions.	£
County Council of Louth,	100
Urban District of Drogheda,	100
Urban District of Dundalk,	110
Departmental Contributions.	
Annual or Endowment Grant,	1,000
Special contribution towards Instruction in Rural Districts,	100
Science and Art Grants,	80
Students' Fees and Receipts from Sales,	177
	<hr/>
	£1,667

Expenditure.

	£
Salary of Principal,	300
Salaries—Teaching Staff,	600
Travelling Expenses of Staff,	132
Clerk's Salary,	26
Fuel, Light and Cleaning,	105
Rent, Rates and Taxes,	75
Printing, Advertising, Postage,	110
Prizes,	40
Class Materials,	105
Grants to Technical Schools for Girls,	100
Administrative and Incidental Expenses,	74
	<hr/>
	£1,667

Whilst the scheme of work for the third Session was in preparation the Department of Agriculture and Technical Instruction increased the annual endowment to £1,310 on the condition that a qualified teacher was appointed to take up the teaching of Chemistry and Physics. The Committee accordingly extended the scope of the Teaching Syllabus so as to include these subjects, the Manual Workshops being used as temporary laboratory premises

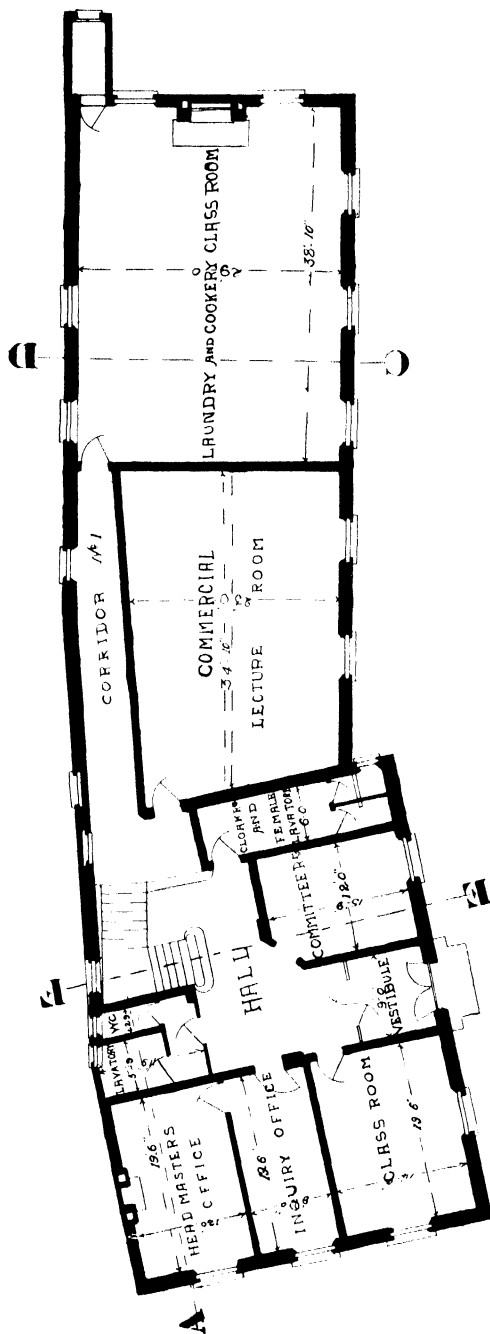
pending the erection of suitable buildings. These have now been provided in Drogheda by the erection of a Laboratory, and in Dundalk by the erection of the new Municipal Technical School building.

The estimates for the current Session are as follows:—

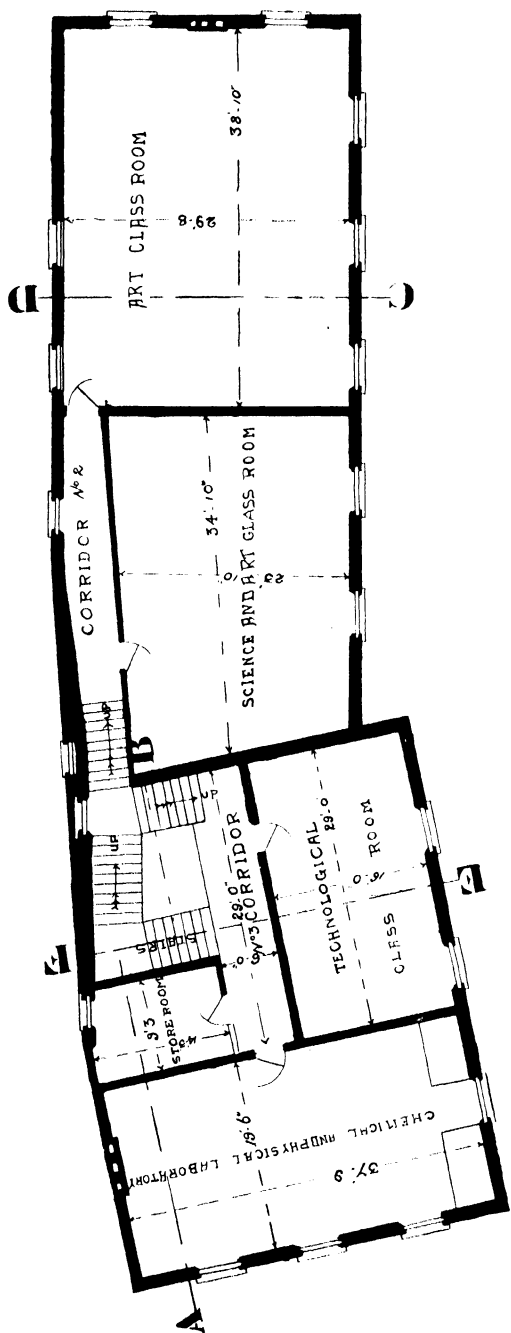
Finance—

<i>A.—Estimated Income—</i>	£
(1) Contributions from the County Council from rate raised over the Rural Districts in the financial year ending 31st March, 1908,	100
(2) Contributions from the Urban District Councils of Drogheda and Dundalk (the produce of a rate of 1 <i>d.</i> in the £ levied in the financial year ending March, 1908),	210
	<hr/> £310
(3) Contributions from the Department—	
(a) From Endowment,	£1,310
(b) Attendance Grants from Science and Art Vote,	190
	<hr/> £1,500
(4) Fees and Sales,	145
	<hr/>
Total,	£1,955

<i>B.—Estimated Expenditure—</i>	£
(1) Salary of Head Master and Secretary,	300
(2) Salaries of other Teachers,	700
(3) Travelling Expenses of Teaching Staff,	125
(4) Class Materials,	104
(5) Caretaker's Wages,	67
(6) Fuel, Light and Cleaning,	90
(7) Grants to Technical Classes for Girls,	100
(8) Rents and Repairs to Premises,	50
(9) Instalment in Repayment of Building Loan,	220
(10) Prizes,	40
(11) Administrative and Incidental Expenses—	
(a) Salary of Clerk,	£45
(b) Printing, Stationery, Advertising,	90
(c) Sundries,	24
	<hr/> 159
Total,	£1,955



MUNICIPAL TECHNICAL SCHOOL, DUNDALK.—Fig. 2.—Ground Plan.



MUNICIPAL TECHNICAL SCHOOL, DUNDALK.—Fig. 3.—First Floor Plan.

The annual expenditure under the scheme, after deducting £155 for the expenses of the itinerant scheme of work, is divided as equally as possible between the two centres of Dundalk and Drogheda; this gives to each centre, approximately, a sum of £900 from which all expenses must be met.

PART III.—EQUIPMENT.

The equipment of the schools has been provided out of a capital sum of £800, which was granted by the Department for this purpose when the original scheme was prepared; to this, unexpended balances remaining as the result of the working of the scheme have been added. These savings during the first two years amounted to a considerable sum, the original equipment fund being very materially augmented thereby.

Out of these funds the Committee, in pursuance of the second part of the scheme, see page 668, have made equipment grants to various secondary schools in the county, amounting to £445. The remaining portion has been, or is to be, utilised for general equipment purposes at the Central Technical Schools in Dundalk and Drogheda, or for the requirements of the itinerant work in the rural districts of the county.

The amount spent on equipment of the Dundalk Technical School up to the present is £1,040, but at least £300 more is required before the equipment can be made as complete as could be wished. Since the funds at the disposal of the local committee of managers are practically exhausted, the only way, so far as can be seen at present, that this money can be obtained will be by rigid economy in the working of the schools or by private subscription—if this latter can be hoped for to any degree.

PART IV.—DESCRIPTION OF BUILDING AND EQUIPMENT.

The school is situated in Chapel-street, the main front facing due south, towards Seatown—which is, perhaps, the oldest part of the town of Dundalk.

Site.

The site is a portion of the grounds formerly attached to the ancient Friary of St. Leonard's, some ruins of which still exist quite close to the new building.

It is a coincidence that this site was, early in the eighteenth century, given by the Earl of Limerick in exchange for some of the corporate lands belonging to the ancient borough of Dundalk, and that upon it he built and endowed a school for the inhabitants

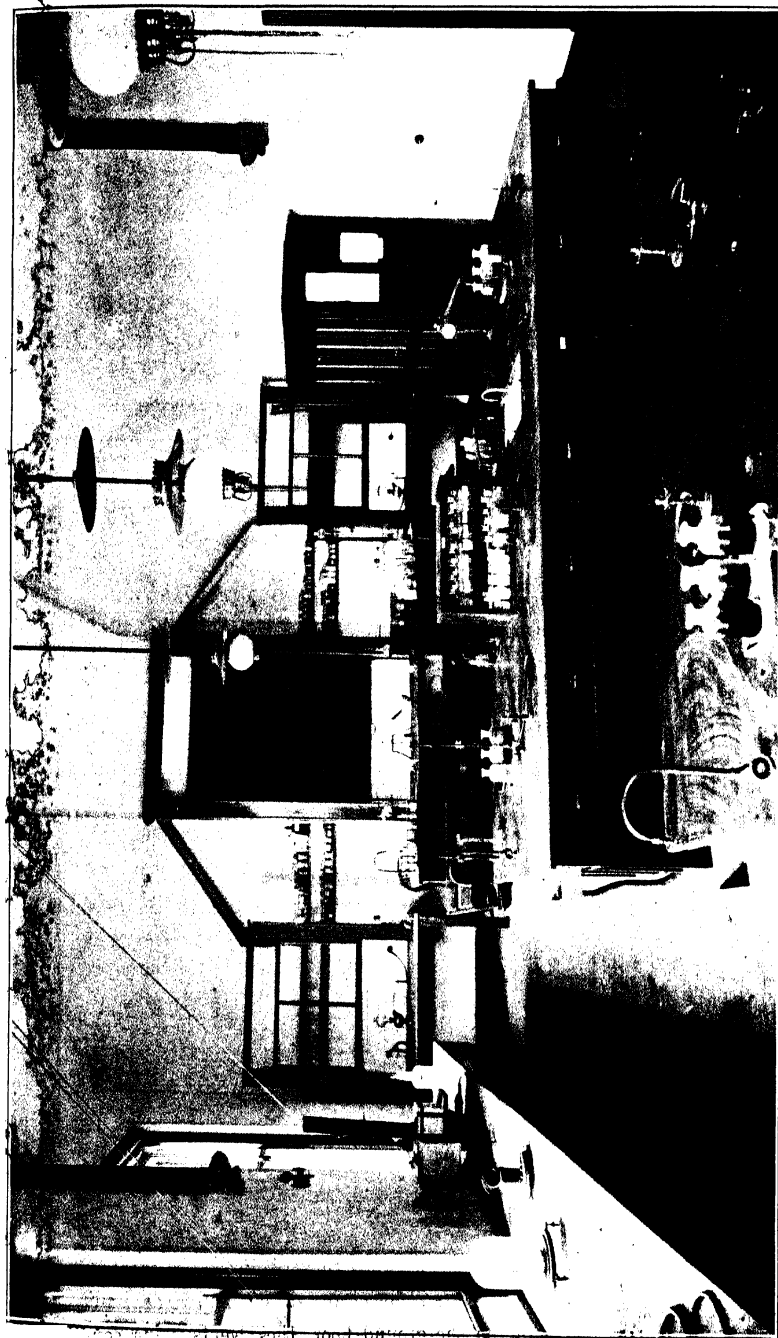
of the town in lieu of the valuable property given him in exchange. This property now again reverts to the people of Dundalk through the efforts of their local representatives, and is once again being utilised for educational purposes.

The materials used in the construction are first-quality pressed brick, with Lagan Vale terra-cotta quoins, mouldings, panellings, and enrichments.

General Description of Building. The length over all is 122 feet; the principal front accounting for 52 feet of this.

The large teak entrance doors open to an outer hall, nine feet square, and the main hall is reached by passing through a pair of massive screen doors, with glass panelling and mahogany framing. The main hall is laid with Terrazzo flooring, on a cement bed. From the main hall, the principal staircase, giving passage to the east wing and first floor, opens up at the north end. Round the hall are the entrances to the inquiry office, head-master's office, board-room, small class-room, cloak-room, and lavatories. The whole of the lighting of the hall is obtained from windows in the north front. The eastern wing on the ground floor, contains a commercial lecture-room, and a domestic economy class-room, access to the latter room being gained by a corridor which passes along the north front of the building. Around the upper hall are grouped the entrances to a physical and chemical laboratory, a class-room and store-room for apparatus; a corridor along the north front gives access to a science class-room and an art room. The heating of the building is on the high pressure system, and is provided for by an improved small diameter hot-water pipe service, constructed of the best quality iron tubing, supported on cast-iron brackets, and fitted with gun-metal air valves at all necessary points. Where the pipes pass under the floor the channels are covered with cast-iron gratings resting on angle iron bearers. The apparatus was designed to maintain the temperature of the various rooms at 60° Fahr. in the severest winter weather, and has been found to answer all demands made upon it in a satisfactory manner.

The system of ventilation is of the simplest type. The lower half of each window-sash is left open, and a glass sheet, 10 inches deep, in mahogany frame, is fitted along the window-sill on the inside; this allows free entry for an upward direct air current. The vitiated air is carried away by means of mica flap vents, built in over each window on the ground floor, these vents being con-



MUNICIPAL TECHNICAL SCHOOL, DUNDALK — Fig 4.—The Science Laboratory.



MUNICIPAL TECHNICAL SCHOOL, DUNDALK --Fig. 5.—Domestic Economy Room.

nected to air grids behind the perforated terra-cotta panels used as enrichments on the frontages. On the upper floor, inlets for air are provided for, as mentioned above, the exhaust taking place through circular gratings in the ceilings, which communicate by means of passages through the roof space with ventilators on the ridge tiles.

The lighting throughout the building is carried out on the high-pressure system. Incandescent gas lamps of 250-600 candle power, two or more in each of the larger class-rooms, as required, and one in each of the smaller rooms on the ground floor, have been adopted. In the art room one central lamp of 2,100 candle power is used.

The Science Laboratory occupies the whole of the west front on the upper floor. It is 37 feet 9 inches long by 19 feet 6 inches wide by 12 feet 6 inches high to spring of roof; the vaulted roof is 6 feet higher in the centre, thus giving much more air space in the room. Working accommodation is provided for twelve students. The waste pipes from the benches and lecture table are all carried to a cement channel, faced with bitumen; this discharges into a vertical glass enamelled metal pipe leading to main drain. The flooring boards over the exhaust pipes and channel are all made moveable for convenience of examination and cleansing.

The class-room shown on the left in the ground plan is intended for the lecture work in the more advanced stages of some of the subjects taught in the school, and is of comparatively small dimensions, its length being 19 feet 6 inches, breadth 14 feet 6 inches, and height 13 feet. The room marked **General Class Rooms.** Commercial Lecture Room, in ground floor plan, is used for classes in English, Arithmetic, Shorthand, and Book-keeping. Its dimensions are: mean length, 34 feet 10 inches; width, 22 feet; and height, 13 feet. A panel space, 7 feet square, executed in Portland cement, with smooth finish and painted white, is laid out on the wall adjacent to the blackboard for use as a lantern screen, when required.

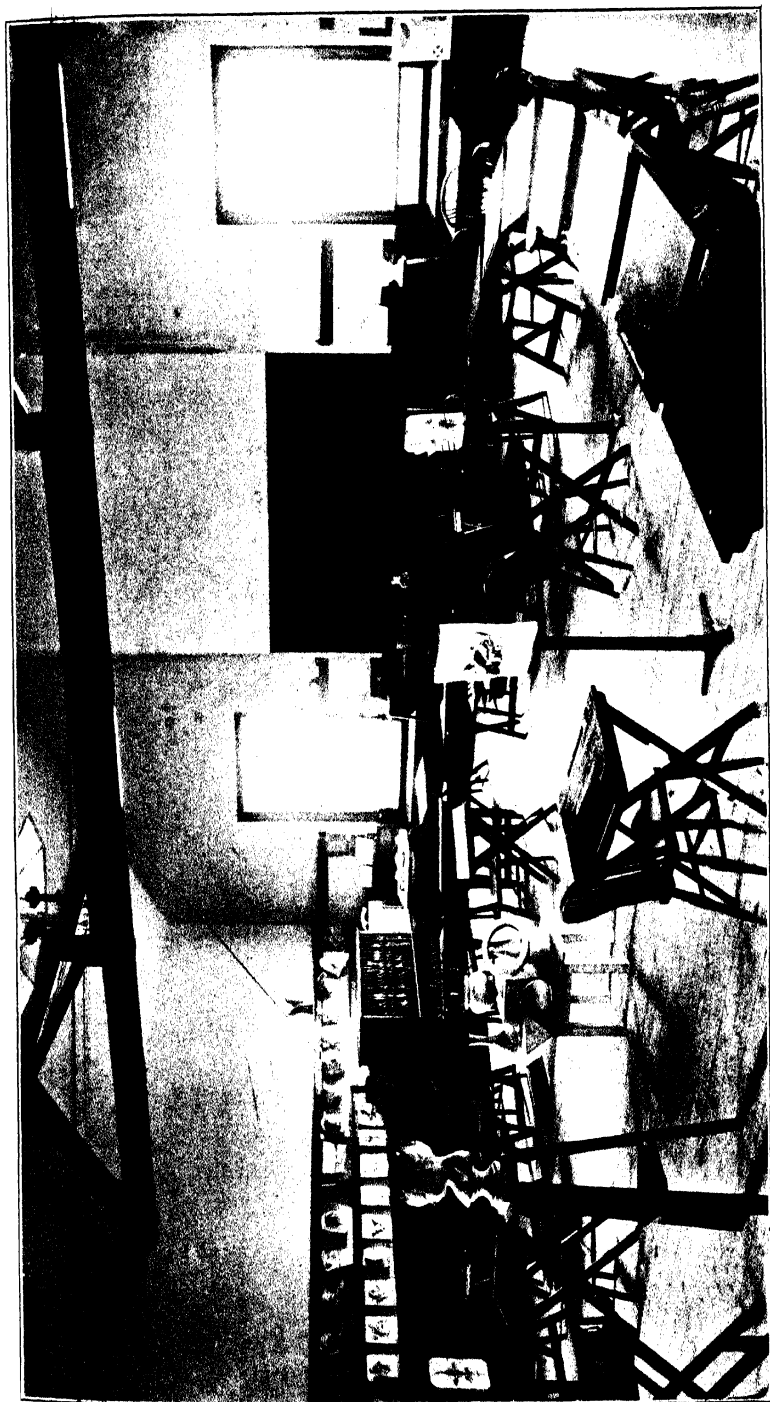
The Science and Art Class-room opens off the corridor on the first floor, and is of the same dimensions as the Commercial Lecture Room, immediately below it. It is furnished and equipped in a similar manner to the Commercial Class-room, with the

addition of a drawingboard rack, arranged to hold fifty boards. The classes taught in this room are Engineering, Drawing, Steam, etc.

The Technological Class-room, opening off the upper hall, is 29 feet long, 16 feet wide, and 12 feet 6 inches high.

The Domestic Economy Room is situated on the ground floor at the end of the eastern wing of the building, and is 38 feet 10 inches long, 20 feet 6 inches wide, and 13 feet high. At the eastern end of the room there is a six-foot double oven "Eagle" range. A high-pressure boiler is fitted to the range, giving an ample supply of hot water. At the right of the range are two porcelain enamelled sinks, 2 feet 6 inches long, 15 inches wide by 12 inches deep, fitted around with drainage boards, and provided with hot and cold-water taps; the space underneath the sinks is framed as a cupboard for storage of sauce-pans and other vessels. A Fletcher Russell iron heating stove makes it possible to heat sixteen irons at one time, when laundry work is in progress, and a large gas stove, "Eureka" pattern, gives facilities for carrying on the culinary operations. At the western end of the room is a gallery rising in three steps. This provides accommodation for seating three rows of students when demonstration lessons are being given, and ensures each student having a clear view of the work carried out by the teacher.

The Art Class-room is situated in the east wing, over the Domestic Economy Class-room. It is 38 feet 10 inches long, 29 feet 8 inches and 12 feet 6 inches high to junction of walls and roof. The queen post roofing used gives a rise of 6 feet from wall to centre of ceiling, thus giving a clear space of 18 feet 6 inches from floor to highest part of roofing. The room is lit by one central lamp, containing three incandescent burners grouped together, giving a light of 2,100 candle power value. For day-class work the room is well lighted by seven windows in the north, east, and south sides, as shown in the plan. The whole of the west end wall, above the wainscotting, is covered with a strip of linoleum 3 feet wide, which serves for practice in blackboard drawing. The central portion of eastern wall, behind the teacher's platform, is fitted similarly with a black-board 10 feet long and 4 feet wide,



MUNICIPAL TECHNICAL SCHOOL, DUNDALK.—Fig. 6.—Art Class Room.



MUNICIPAL TECHNICAL SCHOOL, DUNDALK.—Fig. 7.—Manual Workshop.

which is used for demonstration purposes. The north side of the room is utilised for hanging casts, for which purpose two rows of hanging nails fitted with dust boards are provided. Forty portable desks, drawingboard rack to hold fifty boards, teacher's table, six cast stands, a model stand, and chairs, complete the equipment of the room.

Manual Instruction in Woodwork is carried on in a building of corrugated iron, specially erected for the purpose in the garden at the rear of the school. This building is 60 feet by 24 feet by 10 feet 6 inches high. The inner walls are sheeted with pine sheeting up to the ridge of the roof, which is 15 feet high. It is divided into two parts by a stud partition wall, one part being used as a Manual Instruction Room; the other is at present being fitted up as a Mechanical Laboratory for the use of the Engineering Students.

The room is furnished with ten work benches, two of which are fitted with patent "Grip" vices, the rest are made like the ordinary type of bench in use in the district. At the present time plans are being prepared for the extension of the workshop, which will still further increase its convenience and utility.

PART V.—GENERAL STATISTICS.

The following Tables show the Class Entries in the various sections of the school during each year of work up to the present:—

Sections,	1902-3.	1903-4.	1904-5.	1905-6.	1906-7.
Science,	138	144	201	130	180
Art,	34	70	84	105	65
Technological,	29	40	26	37	25
Commercial,	156	203	237	196	206
Domestic,	131	181	160	128	141
	488	638	708	596	617

The figures for the current session show Class Entries numbering 720 at the time of writing; the maximum number reached in the history of the school.

The occupations of the students of each year up to the present are set forth in the following Table:—

Subjects.	1902-3.	1903-4.	1904-5.	1905-6.	1906-7.
MALES.					
Building Trades,	27	38	38	21	14
Coach Builders,	—	—	1	3	1
Engineers,	35	29	22	30	13
Architects,	2	2	1	1	2
Printing Trades,	2	—	1	2	1
Textile Workers,	—	—	—	—	—
Painters,	1	—	—	3	1
Plumbers,	2	1	3	1	—
Jewellers, &c.,	—	1	1	7	3
Chemists,	—	—	1	2	2
Salesmen, Shopkeepers, &c., ..	29	28	29	22	16
Commercial Clerks,	18	28	25	23	13
Law, Bank, and Civil Service Clerks,	—	—	5	5	5
Teachers,	12	3	3	7	29
University Students,	—	—	2	—	2
Boys left School,	2	—	19	31	—
Boys at School,	—	9	11	17	21
Occupations not included in above Classes,	20	27	22	4	8
Occupation not stated,	2	20	6	—	10
	152	186	190	179	141
FEMALES.					
Domestic Servants,	3	13	11	23	24
Dressmakers, Milliners, &c., ..	35	16	17	26	10
Mill Workers,	—	3	—	1	1
Lace Workers,	—	2	1	1	—
Saleswomen, Shopkeepers,	—	18	19	13	16
Clerks,	—	9	8	12	9
Teachers,	—	17	16	20	22
University Students,	—	—	1	—	—
Girls left School,	—	—	18	11	17
Girls at School,	—	28	14	18	28
Housekeepers, &c.,	51	80	42	33	42
Occupations not included,	7	3	4	1	3
Occupation Nil,	43	10	47	14	10
	139	199	198	173	182

The returns for the current session, so far as tabulated, show a similar general record.

The number of entries and the average attendances at the various classes held during the Session 1907-8 were as follows: —

Subjects.	Number of Entries.	Number of Meetings.	Average Attendance.
English (Prep.),	47	29	25.0
Arithmetic „	94	29	55.6
Science, „	38	29	20.5
Drawing, „	44	28	24.7
Geometry,	14	30	6.2
Machine Drawing,	18	32	10.1
Building Construction,	7	30	3.6
Mathematics,	30	30	13.7
Mechanics,	5	29	3.3
Electricity,	13	28	7.6
Chemistry (Elementary),	17	29	10.8
Chemistry (Advanced),	7	33	3.5
Steam,	28	29	17.2
Cookery,	72	29	30.6
Laundry,	14	28	5.1
Dressmaking,	63	31	36.0
Woodwork,	21	30	9.6
Carpentry and Joinery,	4	31	2.0
Shorthand,	75	93	50.6
Book-keeping,	63	76	36.3
Art Classes (Day),	7	50	3.5
(Evening),	31	28	15.2
Second Year's Science Course, National Teachers.	7	30	5.7

CROP REPORT, No. 3. MID-JULY, 1908.

In continuation of previous crop reports, the following summary, taken from over 200 reports received from the Agricultural Instructors and representative farmers throughout Ireland, shows the appearances and prospects of the different crops at mid-July. The continued warm weather during the first week in July had varying effects on different crops, and also on the same crop, according to the class of soil on which it was growing. The rain which set in about the 8th, improved most of the crops, but has had a tendency to lodge the heavier cereal crops, and retard the later haymakings.

Taking up the various crops in order, the reports received indicate the following leading facts in connection with the growth and present condition of each.

The autumn sown wheat looks best. The sunny weather at the beginning of the month, when the crop

Wheat. was in flower, was most beneficial. The late rains have laid some of the heavier crops. Although some fields are thin and patchy, the crop promises to be an average one.

Much of the lea-land oats, which was thin during the last month, has improved, and in general

Oats. promises well, but will ripen unevenly. After a manured crop on good land the oats are heavy and much lodged by the rain. On wet, cold lands the straw is short, having been checked in growth by the dry weather, and since the rain set in has not recovered much. On lighter soils the rain has done much good. On the whole the crop promises well.

The early sowings of barley are the best. The crop will be heavy on good land, but short on the

Barley. lighter soils. The ears are reported to be large and well filled, and given dry weather a good yield is anticipated. The heavier crops have been much lodged by the late rains, and should wet weather persist much harm will be done.

The rye crop is chiefly sown on moory soils. On this class of land a fine yield is anticipated. Where the soil is light the crop is thin and stunted.

Rye.

Beans were late of being sown, and came on slowly. The crop was thin, and much infested by

Beans and Pease. weeds, but at the present time looks well, and has the stalks well covered with blossoms, so that an average yield is anticipated. Pease are looking well.

During the warm weather potatoes on the drier soils, and where early planted or where the seed was sprouted, made rapid growth. They are still a little backward on the heavier soils, where dry weather first takes effect. The late rains following the warm spell have improved the crop to a great extent. Given a favourable season, there are prospects of a good yield. Blight has made its appearance in many districts, but, except in certain of the Connaught counties, the field crop is as yet not affected to any extent. [For further particulars on the prevalence of potato blight up to the 18th July, see Special Report at p. 702.]

Mangels were sown later than usual, but are making a good growth now in most districts. In some places the crop is backward. The “mangel fly” not reported as troublesome. Turnips where early sown have done well. Late sowings were checked by the drought and fly attacks, necessitating a re-seeding of the land in some counties. Altogether the recent rain did the mangels and turnips much good.

On heavy clays the flax crop is thin, short, branching, and uneven, whilst on very light soils it is much shorter than was anticipated. Dry warm soils are promising a good crop. Where sown on lea-land the crop is of poor promise.

Flax.

The first and second year's hay crop has not bulked well; thin on the ground, with an absence of clover. It is well saved in general, and of good quality. Old meadows are variable, according to soil and condition of land. The wet weather is much against the saving of the crop. In the North, where the first

Hay.

year's crop is allowed to ripen for seed, harvesting is now delayed by wet weather. The crop is cutting out well in some parts, but will not be so heavy as last season. Pastures on good lands have much improved since the rain set in. On cold subsoils they are still thin and bare. Live stock are on the whole healthy, but still low in condition in some districts.

The following are summaries of the outlook for crops in the various counties:—

Leinster.

Wheat not much grown; late sown looks thin and patchy, early sown looking well. Oats: backward and

County Carlow. thin in some places; in others a splendid crop; the late rains helped the crop much.

Barley: doing well, and seems to be above the average. Potatoes: very good and healthy looking. Mangels are doing well, and will be a good crop where the land was well tilled. Turnips are doing well where early sown; the late sowings suffered from the dry weather. First crop hay a good average, but no heavy fields to be seen; nearly all saved in good condition. Meadow hay is light in parts. Pastures greatly improved since the rain; were beginning to get hard and burnt on dry soils. All kinds of stock are healthy, and doing well.

Wheat where sown early looks well, and should fine weather continue will yield a good crop; late sown

County Dublin. places are patchy. Oats: some fields are patchy and thin; otherwise the crop will

likely yield well. Barley in general looks well, but now requires dry, sunny weather. In some parts the cereal crops have been lodged by rain. Potatoes: the earlies were good in general; the late varieties were very backward up to the 10th, but are now much improved, and look well. Mangels are everywhere looking well. Turnips: good; in parts they are backward for the season of the year; fly did much damage to late sowings. New meadows are nearly all well saved, but the crop is somewhat under the average. Old meadows promise a light crop, although fair in parts. Pastures were very bare and burnt by the hot weather; now much improved by the rain. Live stock are healthy, and doing well in some parts of the county; in other districts not so well.

Wheat is now almost on all farms fully in the ear, and though thin in parts, looks well. Oats where
County Kildare. thick enough a very good crop, and promise well: where the crop is thin it has come on wonderfully. Barley looks remarkably well where not lodged by the recent rains. Rye, only sown in bogs, is looking well. Potatoes are growing well. Mangels: a very even crop where early sown. Swedes are coming on nicely; the early sowings are doing best. Late sowings were affected by the drought and heat. First and second crop hay is in cock, and not so heavy as anticipated, but still a good average. Old meadows are bulking fairly well, but nothing extraordinary. Pasture is good, and coming again after the recent rains. Cattle are now doing well.

Wheat: a little thin, but promising. Oats coming on very well now; straw is short on light soils,
County Kilkenny. but much improved by rain. Barley: this crop now doing well, and promises an average yield. Potatoes: those planted early are very good, late plantings are going ahead at present, and are likely to yield well. Mangels are looking well. Early sown turnips are good; those late sown are much improved by the late rains. Cabbages fair. First crop hay is light; most of it saved. Old meadows in general are light. Pastures are very much benefited by the rain, as they were scorched by the heat. Live stock are healthy and thriving.

Wheat, although thin, is promising well. Oats on light sandy soils will be short; on deep land a good
King's County. crop. Barley: average, but will be short on very light soils. Potatoes good. Mangels are doing well. Turnips: after the recent rains this crop has come on wonderfully. Cabbages fair. First and second crop hay made up light. Old meadows medium; pastures good. Live stock doing well.

Wheat promises a fair crop. Oats looking well in many places; much of the crop, however, will be
County Longford. light. Rye up to the present is the best of the cereal crops. Potatoes look a passing good crop. Mangels are average, except where late sown. Early sowings of turnips are coming on well; some of the late

sowings missed. First and second crop hay is saved in fine condition. Meadows will cut out light. Pastures are good. Live stock are in good condition and thriving well.

Wheat: very fair; the sunny weather helped it. Oats good on strong land. The crop suffered

County Louth. much during the dry spell on the lighter soils. Barley: good on rich lands; on the lighter soils much affected by drought, but is now improving since the rain came. These rains have lodged some of the heavier crops. Potatoes fair; those planted late suffered from the dry weather; the earlier sown crop promises well. Mangels: early sown are good: others fair. Turnips are greatly benefited by the rain; the late sowings were scorched by the warm weather and injured by the fly. Hay: first crop light; practically all well saved. Meadow hay a moderate crop; partly saved. Pastures much improved by the rain. Live stock doing well.

Wheat has thickened up greatly in many places; was much benefited by the heat, but not up to the

County Meath. average of former years. Oats on good land heavy and well in ear. On dry land the straw will be short; promises a good yield on the whole. Barley a good crop, showing a large, well-filled ear; odd spots are lodged by the rain. Rye where sown is up to the average. Potatoes are making great progress, but are a little backward on heavy clays. Mangels very variable; much improved by the rain. Turnips: early sowings are well forward and doing well. Late sowings coming on slowly, and are patchy. "Fly" attacks were fairly general. First crop hay has made up below average. Old meadows fair to heavy. Pastures are now much improved by the rain. Cattle and sheep are healthy, and progressing favourably.

Wheat: not much sown. The spring wheat is good, but winter wheat thin. Oats: short on light land,

Queen's County. thin on lea land, but has improved lately, and promises a fair crop. Barley looks well, and will be an average crop. Rye good. Potatoes have every prospect of being a good crop. Mangels looking well. Turnips a general "hit," but some missed; are being thinned, and looking healthy. First and second crop hay has been well saved, but has bulked light generally. Old meadows good. Pasture good, and live stock are doing well.

Oats in full ear, and promises to be a good crop. The lea oats backward, but the warm weather of the **County Westmeath.** first week in July has pushed the crop on. Barley not much grown. Potatoes are looking well. Mangels and turnips, although late of being sown, are doing well. Little harm done by the "fly." The late rains have been beneficial to these crops. Cabbages promise to be an abundant crop. Hay is a very good crop. The showery weather is preventing it being well saved. Pastures good, and live stock much improved.

Wheat good; thin in some fields; the sunny weather, when in blossom, was beneficial. Oats: the winter varieties are good, but the spring sowings are thin and patchy. Barley: generally a good crop; where sown on manured land the crop is good, and in parts lodged, but on lea-land the crop is thin. Beans a fair crop. Potatoes are very promising, although late in many districts. Mangels good, but late. Turnips: early sowings are tedious; fly made great ravages; later sowings are the healthiest. The crop has been much improved by the rain. Hay: first and second crop meadows are rather light. Old meadows a good crop. Pastures are now abundant, and white clover much in evidence. Live stock are healthy, and doing well.

Wheat not much sown; looks well. Oats much improved by the recent rains, but on lea-land still patchy and thin. Barley little grown; a fair crop. Potatoes look very well and promising. Mangels backward for the time of year. Turnips are also backward, being much damaged by the fly in many places. They are now growing rapidly. Hay an average crop; first year's hay has been well saved. Pastures are well covered with grass, and live stock are making satisfactory progress.

Munster.

Wheat not much sown; is doing well. Oats much improved during the month and "earring" evenly, **County Clare.** but thin and patchy on wet soils. Rye doing well on moory soils, but stunted and thin on uplands. Potatoes are looking well now in most places.

Mangels and turnips are doing fairly well. Cabbages good. New hay an average crop, and well saved. Old meadows are a light crop on cold, wet soils, but on good soils are fair. Pastures have been much improved by the rain after the warm weather. Live stock on the whole are doing fairly well.

Wheat very good generally, and well eared; not much "lodging. Oats good on rich soil, but

County Cork. some "lodging" has been caused by the late rains. On "thin" land the straw is still short, but improving. Barley very good generally, but some well-manured fields have lodged. Rye mostly grown for soiling. Potatoes are doing splendidly, and promise a large crop. Mangels: early sowings are good; but late sowings in general are backward. Turnips are poor in most districts, with many bare fields; an average crop cannot be expected. Flax good. Hay: first crop light, but well saved. Old meadows fair, but weather is now bad for saving. Pastures are improved by the late rain, and show much white clover in parts. Cows are now milking well. With the exception of the turnip crop, the country looks well just now.

Wheat good. Oats in general a fair crop, with the exception of some plots of lea, where the straw will

County Kerry. be short. Barley is promising well. On poor land the straw will be short, but productive. Rye very good. Potatoes are fresh-looking and vigorous. The late strong winds have damaged the foliage in exposed parts. Mangels good. Turnips: early sowings have done well. Late sowings were injured by the fly, and in some places had to be re-seeded, but are now looking healthy after the rain. Hay: new grass meadows are an average crop, and well saved. Old meadows scarcely an average crop. Pastures are good, and live stock generally healthy.

Wheat not much grown; fair crop. Oats doing well, except where checked by charlock. Barley little

County Limerick. grown; good crop. Rye good. Potatoes did not look so well for years. Sprouted seed are still well to the front both in foliage and size of tubers. Mangels good, especially where sown early. Turnips backward, but are coming on. Hay not an average crop, but is well saved. Old meadows fair. Pastures are good, and stock doing well.

Wheat in general is looking well, and promises a good yield.

Oats very much improved by the late rains,

County Tipperary. and if it escapes lodging will be an average crop. Barley will be a good average crop; but in a few districts straw is short. Potatoes are doing well; a good crop is anticipated. Mangels good. Turnips have recovered from the "fly" and dry weather in most places, and are now getting along well. New hay all saved in fine condition; is an average crop in some districts, but light in others. Old meadows are not up to the average, and the present weather is bad for saving the crop. Pastures are good; greatly improved by the rain. Live stock doing well.

Wheat little grown, but is doing well. Oats promising a good yield. Straw short in many districts.

County Waterford. Some of the crop has been lodged by the recent rains. Barley little grown; in a few districts is thin; the heavy rains last week lodged some of the crop. Potatoes are looking well; much improved during last two weeks; a good yield is expected. Mangels much improved, but patchy in some parts. No injury from the "mangel fly." Turnips: early sown are thinned. The fly did much damage to the late sown crop. Hay: first crop good to fair; generally well saved. Old meadows: average pastures much improved by the rain, and are looking well. Live stock doing well.

Ulster.

Wheat is looking well, and promises a good crop. Oats: the late rains have greatly improved prospects;

County Antrim. the crop will be up to the average. Leas, where not too much thinned, will be the best. Barley, where sown, is now doing fairly well. Rye, average. Beans rather thin, but a good crop in most parts where grown. Potatoes are growing rapidly. Some excellent crops. On cold, wet lands the crop is late and backward. Mangels are making a good growth; early sown are best. Turnips growing rapidly where sown early. The late sowings where the land was stiff made slow growth during the dry weather. Cabbages fair. Flax is a variable crop, according to the soil; some good fields, much bad. Hay: first year's cutting scarcely an average crop; much of it is well saved. Second year's crop is light. Meadows are growing fast, and promise an average crop. Upland hay kept for seed is

ripening quickly, and cutting will be in full swing in a few days. Pasture is good. Live stock have plenty of food, and in general are thriving well.

Wheat where sown is looking well. Oats improved much since the rain came, and will be a fair crop.

County Armagh. Potatoes are growing rapidly; those late planted are coming on strong since the rain set in. Mangels and turnips are doing well. Cabbages: a good appearance. Flax is looking well, but weedy in parts. Hay in general is an average crop. In many districts first-crop hay is allowed to ripen for seed. Italian rye-grass is reported not to be so good as last year. Second and third year's cutting will be under average. Pastures good, and stock thriving.

Wheat little sown, but is doing well. The winter sown is best.

Oats: much improved by the recent rains,

County Cavan. but are patchy and thin on cold, wet soils.

Where grown after a manured crop, inclined to be weedy in parts. Rye promises well in most districts. Potatoes: much improved lately, and are now looking healthy. Mangels are singled, and growing well. Turnips are being singled, and promise to be a good crop. Flax is maturing rapidly, and will be short in most districts. First year's hay crop gathered rather thin. Old meadows are now doing well. Pastures continue good, and cattle are doing better.

Oats are in general looking fair. Much of the lea oats are thin, but otherwise looking well. Charlock has

County Donegal. infested the crop on the best lands in parts.

Barley: little grown; is average. Rye has made vigorous growth lately. Pease good. Potatoes made a good growth during the dry weather; early planted and those sprouted are doing best. Mangels growing well. Turnips are at the thinning stage. The fly did little damage this season. Flax in general looks well. The hay crop, especially meadows, is good in some districts, but light in others; much of the upland hay was cocked before the wet weather set in. Pastures are looking well just now. Live stock generally healthy, and in nice condition.

Wheat: autumn sown looks well; spring sown patchy, but all making a fine growth since the rain set in.

County Down. Lea oats doing well, but in places thin; that on manured land is good, with the exception of wet spots, which are stunted and weedy. Barley pro-

mises a good crop. Potatoes: all looking well, except where late planted on heavy ground. Mangels, though late in sowing, are covering the ground quickly. Turnips: early sowings thinned and doing well; late sowings have improved much after the rain. Flax: much benefited by the heat and rain; a nice crop in parts, but medium in others. First-crop hay not so heavy as was anticipated; this wet weather will cause more to be kept for seed than was intended. Second and third crop is bulking better than first crop. Pastures are good, and cattle now doing well.

Wheat fairly good, particularly the early sown; has improved much during last week. Oats after a
County Fermanagh. manured crop fair. Lea oats thin and patchy, but improving. The potato crop is now looking well; even those planted late are making much progress. Mangels are rather irregular, but growing well. Turnips are in general good, especially the early sown. Flax is considerably improved of late; on the whole, there is promise of a fair yield. Hay is not so good a crop as last year, but old meadows are thickening up. Pastures greatly benefited by the heat and rain. Live stock thriving and healthy.

Oats improved immensely since the rain set in, and promise a fairly good crop, but in many parts
County Londonderry. are thin and uneven. Beans are looking healthy and making good growth. Potatoes are coming along splendidly; many early planted fields are in full blossom; the late planted crop is doing well. Mangels are good in some districts and poor in others. Turnips growing fast, both early and late sowings; no damage done by the "fly." The ground is generally free from weeds this season. Cabbages looking well. Flax is late, but will probably be a medium crop. First-crop hay is a poor, light crop on hilly land; in general, is worse than was anticipated. Meadow hay average. Pastures good and cattle thriving. At present the prospects are fairly good.

Wheat: little sown, is a fair crop. Oats looking well after the rain. Lea oats are rather thin; will be
County Monaghan. an average crop except on light land, where the straw is short. Barley good; very little sown. Potatoes a very promising crop since the rain came. Mangels greatly improved; growing well. Turnips are making good progress. Cabbages, average. Flax is short in some districts,

but promises an average crop in others. "Force grass" hay is in general fair; much of the crop is kept for seed. Meadow hay will be average. Pastures fair, and stock doing well.

Wheat little sown; a good crop. Oats: short straw in some districts, but the rain will improve it. In

County Tyrone. general, the crop will be under the average.

Rye good. Potatoes are healthy, and growing well. In the drier parts of the county potatoes never looked better at the time of year, but too much rain is dreaded in the wetter parts. Mangels late, but promising. Turnips in most parts are good, but in places the late sowings did badly, and had to be re-sown. "Fly" gave little trouble this season. Flax in some districts is lighter than was anticipated; where the crop was sown on lea ground it is thin, but of a fair length. The crop is much improved by the heat and late rains. First year's hay a lighter crop than last season; where this crop is grown for seed the cutting has commenced, but is much delayed by the wet weather. Meadows will be average. Pastures are much improved by the rain. Live stock are doing well, and are free from disease.

Connaught.

Wheat not much grown; late sown is thin, and straw will be short. Oats a good crop on warm soils, but

County Galway. on cold, wet lands is short, thin, and poor-looking. Barley, not much grown; a fair

crop. Rye is good in most places, but some plots are backward. Potatoes, on the whole, are a most promising crop; much improved during the month in cold districts. Mangels, though late sown, have done well. Turnips: the early sowings are doing well; the late sowings were attacked by the "fly" in parts. Cabbages good. Hay: a good deal of the crop has been saved; the yield is under the average, but the quality is good. Old meadows will not be as heavy as last year. Pastures fairly good, but did not thicken up on cold, wet sub-soils. Live stock are doing well.

Wheat very little grown. Oats in general a fair crop, unless in very damp fields, where it is short and

County Leitrim. patchy. Stiff soils much given to weeds.

Rye is doing well. Potatoes are in general good. Those planted late on uplands are backward, but latterly

much improved. Mangels good. Turnips are doing well. Cabbages average, but much damaged by caterpillars. Hay in general is a light crop, but meadows are filling up well. Grass is good, and cattle now doing well.

The small patches of wheat grown are thin, but look healthy.

Oats: on dry, warm soil the crop is fair, but

County Mayo. on cold, wet land it is short and thin.

Barley: very little grown; is a fair crop.

Rye will be up to the average. Potatoes are much improved by the heat and promise well, except on very wet land. Mangels doing well. Turnips fair; late sowings suffered from "fly" attacks. Hay will not be an average crop, and is thin, though in some districts there is a good crop. Pastures are fair in most places, but bad on cold lands. Live stock are now thriving well, but poor in condition for the season of the year.

Wheat looks well, but straw will be short. Oats: some good crops, but, as a rule, short and uneven.

County Roscommon. Rye looks well on moorland, but is thin on uplands. Potatoes: very good at present.

Mangels good. Turnips, where sown early, have come on well. Late sowings were checked by the fly and drought, but are now growing well. Cabbages fair. Rye grass and clover is light, but much of it is well saved. Late meadows do not promise so well as last year. Pasture is fair, but much of it is inferior. Stock are fairly healthy, but not forward.

Wheat little grown; a good average crop. Oats: in many places the straw will be short, in others thin, but

County Sligo. likely to be a fair crop. Rye promises well.

Potatoes are forward-looking and good.

Mangels good. Turnips, where sown early, are a fine crop. Late sowings not doing so well in places. The crop has been much benefited by the rain. Cabbages fair. Hay: first and second crop rye-grass is well saved; a good yield, except on wet land, where the crop was thin. Meadows are average to light. Pastures good, and cattle thriving well.

SUMMARY OF FRUIT CROP REPORTS, JULY, 1908.

Through the courtesy of nearly 200 correspondents, including instructors in horticulture, fruit growers and gardeners, reports regarding the state of the fruit crop have been received by the Department, and from these reports the following summary has been compiled :—

Reports on gooseberries generally indicate a poor crop with the exception of those planted in sheltered situations. “The cold winds in spring and the April frosts were the chief causes of scarcity in this crop,” says a Wicklow correspondent. Another correspondent from Meath says, “I never saw the gooseberries so much affected by frost as this year.” From Tyrone, “Gooseberries about half a crop owing to frosts in the last week of April.” In many districts this is a crop of considerable commercial value and is largely grown. On this account the crop has been a great disappointment to growers. Many bushes have been entirely stripped of foliage by the sawfly caterpillars. American gooseberry mildew has done considerable damage in several counties.

Strawberries in general have been reported on as a good average crop. The warm weather at the end of June and beginning of July ripened the fruit well; although wishes were expressed for rain to lengthen out the period of fruit gathering and increase the yields. First gatherings were made 18 days earlier than last season. The heat and drought during last few days of June and first 10 days of July had serious effect on the yield, the majority of the late flowers did not develop into fruit.

Raspberries appear an average yield. “The frosts at the end of April cut many of the canes to the ground” (Wexford). Reports seem to show that the crop will be as good as last year.

Red and white currants are very variable in yield and size. Black currants a good crop in parts, but in other districts thin on the bushes, but of a good size and firm. Early frosts did harm at the flowering and setting of the fruit. The currant mite and caterpillars did some damage.

The apple crop is in general very light. Some varieties have yielded well. Frost in April, at the flowering stage, is the general cause of failure of the crop.

Apple and Pear Crop. "Though apples escaped the frost they are a poor crop. I am inclined to think the wood was imperfectly ripened owing to the very wet and sunless autumn of last year, hence the failure" (Queen's County). "The very cold nights in May cut off 75 per cent. of the apples which had formed" (Down). The later varieties promise a better crop than the earlier. Apples flowered well, but insects and frost ruined them. Pears are in general a failure unless on sheltered walls.

Plums are a very poor crop. Fair crops of Victorias are reported from parts. "Silver Leaf" is in evidence.

Plums and Damsons. Damsons not much grown, and reports are variable; some places a good crop, others bad.

The cold, severe weather at the stages of flowering and setting of the fruit prevented an average cherry crop being produced.

Cherries. Morellos are reported to be a good crop. Cherry orchards are being allowed to decay owing to the difficulty in saving the fruit from wild birds.

The Spring of 1908 was very unfavourable for the Fruit Crop.

Season. In March the first week was changeable, cold, at times blustering, with a heavy rainfall. Hail, sleet or snow fell in most parts of the country on the 1st. There were sharp frosts inland on the night of the 3rd; 26.9° was registered on the ground in Dublin on the 4th. The second and third weeks were changeable and cold with the exceptions of a few bright intervals in the third. On the 19th and 20th fine hail, sleet and finally snow fell. The thermometer fell to 19° at Birr Castle on the 19th. In general, March was unsettled, rainy and cold. Its mean temperature was only $\frac{1}{2}$ ° F. above that of January and 2.8° below February. April was also unusually severe, and the defects of temperature increased as the month advanced. Save for a few hours of springlike weather on the 2nd, the first week of April belied the advanced season of the year. The second week was generally cold. The temperature on the ground was 27.7° on the 6th. During the third week there were sharp night frosts. Not since 1876 has such a spell of cold weather been recorded in April as that which has made the Easter week of 1908 memorable. The remarkable

point about that period of exceptionally cold weather was its occurrence in one of the coldest Springs of recent times. The 24th was cold; snow and hail fell, and night frosts threatened the promise of Spring. The mean temperature of the 24th in Dublin was 32.9° or 16° below the average, with a minimum of 22.9° registered on the grass. A Meath correspondent reports 16° frost at Dunboyne on the 25th. Another from the same county says, "On twenty nights during the month of April the thermometer stood at 32° or below, with 12° of frost on the 24th and 25th, and snow on the 15th, 23rd, 24th, and 25th." From Kildare the following is reported:—" 12° frost on the 23rd, 10° on the 24th, 14° on the 28th." A Dublin correspondent reports 16° of frost at Clonsilla on the 26th. From Westmeath, "On the 24th, 25th, and 26th there were 11° , 8° , and 10° frost respectively." From Waterford, " 12° frost on the 24th." From Clare, " 9° frost on the 24th." A report from near Tullyhogue, County Tyrone, gives " 10° frost on the 23rd, 10° on the 24th, 9° on the 25th, with snow on the 24th;" " 9° frost with three inches of snow on night of 24th, 8° frost on 25th, and a low temperature the following week." (Co. Down.) The effects of the week's weather, as given by correspondents, may be briefly stated thus:—"This week completely ruined Pears, Plums, and in many places Gooseberries and Apples." (Kildare.)

"The Winter was severe, but cold winds in Spring and 13° frost during one night in April are the principal causes of scarcity of apples, pears, and gooseberries." (Wicklow.) "Harsh weather and late frosts killed all the fruit that were in blossom or just set; up to this there was an excellent promise." (Queen's County.) "Season promised very well, but late frosts destroyed the blossoms on pears and plums and a few of the early strawberries." (Cork.) "The unseasonable weather in April, and notably the third week, when we had violent and cold winds, hail, snow, and rain, with 9° frost on the 24th, destroyed a previously magnificent show of pear and plum blossoms, and also inflicted a deal of damage on bush fruits and the earliest strawberries." (West Clare.) "A harsh, cold Spring was beneficial in retarding the bloom which was profuse everywhere. Before the fruit was firmly set hail and frost cut off most of the crop." (Kerry.) "All fruit trees and bushes promised exceptionally well in the early Spring. There were plenty of blossoms, but the most inclement weather during the setting period has had disastrous effect on fruit crops generally, perhaps with the exception of the strawberry." (Waterford N.) "Fruit trees and bushes promised well until the severe frost and snow in April, when they were completely cut away." (Roscommon.) "Owing to the frost

and snow in April all the bush fruit in blossom suffered very much." (Mayo.) "Weather during the Winter and Spring was colder and less genial than usual. Severe frosts late in April destroyed the gooseberries and black currants. Later cold winds spoiled the apples and pears whilst setting the fruit." (Donegal.) "The late Spring frost and snow did much damage to the pears and plums. Though the apples escaped, the crop in many places does not look healthy." (Tyrone) "The cold, frosty weather damaged the gooseberry and early apple blossoms." (Armagh.) "All fruit trees flowered here most profusely, and but for the frost at the end of April and the first eight days in May must have borne very heavy crops." (Down.) On the 6th of May there was hail in Dublin, followed by a cold night. The screened thermometer showed 35° at Birr, 39° at Donaghadee, and 41° at Dublin and Valentia. The weather was generally cold, with hail and sleet until the end of the month. The first week of June was cold. On the night of the 11th the screened thermometer registered 39° at Birr Castle, 41° at Donaghadee, 42° at Valentia, and 46° at Dublin. The third week was cold. Warm weather set in towards the end of June and continued into July. During this warm spell there were frosts at night. Reports show that should the warm weather continue it would shorten the strawberry season. "Severe frosts at the end of April did much damage to vegetation, and although blossoms were plentiful and promising, and late May frosts were less than the preceding few years, fruit set badly. The very dry weather in June prevented strawberries from attaining their full size and shortened their season." (Wicklow.) "The fruit crops were badly injured by frost and hail in early May." (Kerry). "In May the prospects of the apple crop were good, but cold winds ruined the blossoms." (Mayo.)

The wet cold spring seems to have been favourable to insects. Slugs and snails did much harm. Winter Moth caterpillars, Apple sucker (*Psylla Mali*) Apple

Insect and Fungoid Attacks. Blossom Weevil and Ermine Moth have done much damage. The caterpillars of the sawfly have destroyed the foliage of gooseberry and currant bushes. Green fly has attacked currants and plums. Amongst fungoid attacks the most common are canker and American blight on apples and gooseberry mildew. As to fungoid attacks, the general opinion is that they were not any more troublesome than last season, though in some districts they were very severe, almost ruining some plantations. Gooseberry mildew is still common in parts, but is being got rid of by burning the diseased bushes.

Subjoined is a summary of the reports received from the different counties :—

Leinster.

Gooseberries, a heavy crop in some districts ; medium in others. Strawberries a good crop. Raspberries are

County Carlow. promising well. Red and black currants an abundant crop. Apples will be a light crop.

Pears bad, unless where sheltered. Plums, a very poor crop. Damsons not much grown, a poor crop. The severe frost in spring, and the continued harsh weather up to end of May was bad on fruit trees. Insect attacks fairly prevalent.

Gooseberries a light crop. Strawberries above the average. Raspberries light to good. Red and black currants

County Dublin. medium. Apples promise a fair crop. Pears, plums, and damsons under average. Frosts at the end of April did much harm. Fruit trees are fairly free from insect pests ; mildew not common.

Gooseberries in some places good, below average in exposed situations. Strawberries a good crop. Raspberries

County Kildare. berries promise a good crop. Red and black currants average. Apples below average. Pears, plums, and damsons a poor crop. Loganberries good. Cherries a poor crop. April frosts destroyed many of the fruit buds, aphid attacks on the plum trees are common. Gooseberry bushes have been injured by caterpillars.

Gooseberries a small crop. Strawberries good. Raspberries promise a good crop. Red, white, and black currants

County Kilkenny. are an average crop. The apple crop is irregular, some varieties showing a good appearance, others not. Pears a small crop. Plums and damsons not good. Frost damaged the blossoms in exposed situations. Caterpillars of the gooseberry sawfly gave some trouble.

Gooseberries a bad crop of fruit. Strawberries an excellent crop. Raspberries good. Red, white, and black

King's County. currants good. Apples a fair crop. Pears plums, and damsons a bad crop. Cherries and peaches a poor crop. Sharp frosts did much damage at the flowering stage to fruit trees. Bushes fairly free from insect and fungus attacks.

Gooseberries a small crop. Strawberries a good crop. Raspberries a good promise. Red, white, and black currants a good crop. Apples and pears show a poor crop. Plums not good. Damsons medium. Cherries not average. Slugs and caterpillars were abundant.

Gooseberries a poor crop—a failure in many places. Strawberries were in general good. Raspberries promise well. Red and white currants fair; black currants a fair crop, inferior in some districts. Apples a very light crop. Pears poor. Plums and damsons very thin crop.

Gooseberries in most places a bad crop. Strawberries plentiful, and of good quality. Raspberries good. Red and white currants an average crop. Black currants generally a good crop, poor in places. Apples, the later varieties promise well, and should give an average crop; earlier varieties in general a failure. Pears bad to average. Plums and damsons not good. Peaches bad. Morello cherries good. American blight and canker has affected old trees. Caterpillar attacks prevalent.

Gooseberries a very thin crop, unless in sheltered districts. Strawberries a full crop. Raspberries good. Red, white, and black currants an average crop. Apples, some varieties a full crop, but most a thin one. Pears, with exception of hardier kinds, a failure. Plums poor. Damsons average. Loganberries good. Cherries bad. Late frosts destroyed fruit prospects. Insect and fungoid pests much in evidence.

Gooseberries average crop in some districts, a failure in others. Strawberries very good. Raspberries average. Red, white, and black currants are under average. Apples half a crop to good. Pears below average. Plums and damsons bad. Sweet Cherries a failure. Morellos a good crop. Canker and American blight prevalent.

Gooseberries a good crop, especially in sheltered situations. Strawberries very good. Raspberries average. Red, white and black currants good in some districts, medium in others. Apples a light crop. Pears bad. Plums and Damsons bad. Morello cherries very good. Frost and hail showers at end of April did much harm. Not much fungoid diseases.

Gooseberries a bad crop. Strawberries good. Raspberries a fair promise. Red and white currants fair to good.

County Wicklow. Black currants medium to good. Apples a poor crop. Pears bad. Plums and damsons bad. Insect pests and fungoid attacks less than usual.

Munster.

Gooseberries a good crop. Strawberries very good. Raspberries promise to be a good crop. Red and white

County Clare. currants good. Black currants good, in some parts under average. Apples a good crop generally, but poor in some parts. Pears a very light crop. Plums and damsons bad. Cherries a light crop. Insects not doing much harm.

Gooseberries in general a good crop, but light in some districts. Strawberries very good. Raspberries medium

County Cork. to fair. Red, white and black currants poor to average. Apples good to bad. Pears bad. Plums and damsons bad. Peaches grown in the open are a failure.

Gooseberries are a very poor crop in some districts and good in others. Strawberries good. Raspberries

County Kerry. medium. Red and white currants a fair crop. Black currants medium to good. Apples a light crop. Pears almost a failure except wall trees and those grown on sheltered places. Plums and damsons a bad crop. Insects not troublesome with exception of caterpillars.

Gooseberries an average crop. Strawberries good. Raspberries give a fair promise. Red, white, and black currants

County Limerick. are good. The apple crop will be under average. Pears, plums, and damsons a bad crop. April frosts did much damage. Caterpillars are numerous.

Gooseberries are under the average in some places, a good crop in others. Strawberries above the average.

County Tipperary. Raspberries promise well. Red, white, and black currants are an average crop. Apples good in some places, but disappointing in others. Pears a poor crop. Plums and damsons very poor. The country is fairly free from insect and fungoid pests.

Gooseberries a thin crop. Strawberries a full crop. Raspberries good.

Red and white currants fair. Black currants.

County Waterford. good. Early apples a poor crop, later varieties a light crop. Pears, plums, and damsons bad.

Canker on apple trees common. The caterpillar of the gooseberry saw-fly is common.

Ulster.

Gooseberries about half a crop. Strawberries average. Raspberries promise a fair yield. Red and white

County Antrim. currants light to fair. Black currants below average. Apples half a crop. Pears, plums,

damsons, and cherries are a very light crop. Loganberries are very good. Frosts did much harm.

Gooseberries an irregular crop, some growers have an average crop, others not one-third crop. Strawberries a full

County Armagh. average crop of good quality on young plants. In a few places a light crop is reported.

Raspberries on sheltered and good land a good crop, but a great portion only medium. Red and white currants rather under the average. Black currants a three-quarter crop, or under. Apples a medium to fair crop, bad in many districts. Pears are much under the average. Plums and damsons under the average, unless in favourable districts. Insects and fungoid pests are on the increase.

Gooseberries are a fair crop. Strawberries good. Raspberries are very promising. Red and white currants not

County Cavan. much grown, an average crop. Black currants a good average crop. Apples promise fairly

well, but Bramley Seedling not as good as last year. Pears few grown, look fair. Plums and damsons not grown to any extent—a bad crop. April frosts did much damage to fruit trees and bushes.

Gooseberries under average, much damage done by caterpillars.

Strawberries a full crop. Raspberries promise

County Donegal. a good return. Red and white currants a heavy crop in some parts, but under average in others.

Black currants considerably under average. Apples vary much according to locality and exposure, but in general a bad crop. Pears a bad crop. Plums and damsons a failure. Loganberries promise a fine crop. Cherries medium. Insect and fungoid pests noticeable, but not any worse than usual.

Gooseberries about one half the average crop, but where the soil was dry and the locality not exposed there is a full

County Down. crop. Strawberries a plentiful crop. Raspberries good in some places, but below the average in others. Red and white currants a fair crop. Black currants thin on the bushes, good in parts. Apples a heavy crop in many districts, but almost a failure in others. Pears a small crop. Plums and damsons very variable from good to bad. Cherries fair. Loganberries good. The gooseberry caterpillar did much harm.

Gooseberries a bad crop. Strawberries good. Raspberries average.

Red and white currants fair. Black currants

County Fermanagh. below average. Apples good. Pears bad. Plums, damsons, and cherries bad. Apple scab and gooseberry mildew are the chief fungoid pests. Caterpillars of the winter moth, apple psylla, and apple blossom weevil did much harm.

Gooseberries a bad crop in some districts, good in others. Strawberries a full crop. Raspberries show a good

County Londonderry. promise. Red and white currants are a heavy crop. Black currants light to good. Apples medium to poor, although in some districts a heavy crop. Pears medium. Plums, damsons, and cherries bad. Insect pests do not seem more plentiful than usual.

Gooseberries an average crop, but a failure in some districts.

Strawberries good. Raspberries a fair crop.

County Monaghan. Red and white currants an average crop. Black currants a good average. Apples in some parts a plentiful crop, but in a few districts poor. Pears below average to bad. Plums and damsons, bad in general, but a few reports point to an average crop. The caterpillars of the gooseberry saw-fly have done much harm; also American blight and the caterpillars of the winter moth. The chief fungoid pests are canker and gooseberry mildew.

Gooseberries are below average. Strawberries a full crop. Raspberries promise to be a good crop. Red and

County Tyrone. white currants are about average. Black currants will be a good crop in some districts, whilst in others the berries are thin on the bushes, but are large and firm. Apples are well covered with fruit, but the crop will be below average. Pears a bad crop. Plums and damsons are much below

average. Victorias show a fair crop. Late spring frosts did much damage. Slugs have been destructive. Fungoid pests not much in evidence, except apple canker in places.

Connought.

Gooseberries a bad crop. Strawberries a good crop, and berries attained a good size. Raspberries, although

County Galway. fairly good, cannot compare with the crop of last year. White and red currants good.

Black currants a good crop in some districts, but light in others. Apples are a fair crop, except on exposed situations. Pears, plums, and damsons bad. Loganberry is showing a good crop. The gooseberry and currant saw fly, also slugs, have done much harm. The worst fungoid pests are gooseberry mildew and canker.

Gooseberries a very poor crop. Strawberries fair. Raspberries promise well. Red and white currants average.

County Leitrim. Black currants fair to good. Apples moderately good; some places crop will be light.

Pears a poor crop. Plums not good. Cherries fair. Insect and fungoid pests not more troublesome than other years.

Gooseberries fair to bad. Strawberries good. Raspberries promise well. Red, white, and black currants average.

County Mayo. Apples a good crop in many districts, poor in others; late varieties have done best according to some correspondents. Pears, plums and damsons a light crop; a failure in some parts. Gooseberry caterpillars and slugs did much harm.

Gooseberries very much under average; a failure in parts. Strawberries good. Raspberries medium. Red,

County Roscommon. white, and black currants under average.

Apples a bad crop generally; a few varieties are bearing fairly well. Pears a bad crop. Plums a failure, except in a few sheltered gardens on north walls. Loganberry a good crop. Caterpillars of the gooseberry saw fly have done much harm. Fungoid pests are not giving much trouble.

Gooseberries a very poor crop. Strawberries good. Raspberries promise an average crop. Red, white, and

County Sligo. black currants a good crop in some districts but poor in others. Apples: a very thin crop

of all varieties and will be below average. Pears and plums a poor crop. Cherries good. Gooseberry saw fly caterpillars have done much harm. Canker is the most noticeable of the fungoid diseases.

REPORT ON THE PREVALENCE OF POTATO BLIGHT IN IRELAND UP TO 18TH JULY, 1908.

The appearance of blight in the potato crop this year was reported fully a week earlier than last season. In one of the seaboard districts of County Mayo (Belmullet) it showed itself as early as 11th June, and up to 20th June eleven cases in all were reported. These were located in the following counties:—Galway (3), Mayo (2), Roscommon (2), Leitrim (1), Sligo (1), Westmeath (1), and Cork (1). Up to the same date last year, only three outbreaks were reported. For the week ended 22nd June this year reports from Constabulary sub-districts were received. A comparison with the similar returns furnished for the same period last year shows the counties reported as affected at this stage in both seasons:—

Number of Sub-Districts Affected.

County.	For week ended 29th June, 1907.	For week ended 27th June, 1908.	County.	For week ended 29th June, 1907.	For week ended 27th June, 1908.
Mayo, . . .	13	10	Dublin, . . .	—	1
Roscommon, . . .	2	5	Westmeath, . . .	—	1
Sligo, . . .	1	4	Cavan, . . .	2	—
Kerry, . . .	2	3	Monaghan, . . .	2	—
Tipperary, . . .	2	3	Donegal, . . .	2	—
Cork, . . .	7	2	Fermanagh, . . .	1	—
Waterford, . . .	3	1	Clare, . . .	1	—
Galway, . . .	—	11	Longford, . . .	1	—

The number of outbreaks at this stage, it will be seen, was much about the same for the two seasons (39 in 1907, 41 in 1908).

Owing to the extreme wet in 1907 the disease spread very rapidly, with the result that during the next week—that ended 4th July—reports from 214 affected districts were received out of a total of approximately 1,300 rural Constabulary sub-districts in Ireland, whereas this year for the similar period the number of sub-districts from which the disease was reported reached only 104. The following are the comparative number of affected sub-districts reported in the two seasons for the weeks which follow, and which ended 11th July and 18th July respectively this year:—

1907.

309 up to 9th July.

438 up to 16th July.

1908.

213 up to 11th July.

295 up to 18th July.

During the first weeks most of the outbreaks notified occurred for the chief part in sheltered gardens and among early varieties. This fact must not be overlooked in estimating the amount of disease from the number of affected districts reported. Up to 11th July only a very small proportion of the outbreaks referred to the general field crops, and these were mostly confined to wet and low-lying soils. The favourable weather throughout the closing weeks of June and early July this year has checked any rapid spread of disease among the general field crop, and this, coupled with more widespread attention to spraying, gives a good prospect to the crop, which at this stage is making very satisfactory growth.

The following summary indicates the situation for the four weeks ended the 18th July, but not for any later date.

LEINSTER.

Carlow.—No disease reported up to the 27th June. One affected district reported during the week ended 4th July, two during the week ended 11th July, and three for the week following. The disease chiefly confined to sheltered gardens. Spraying is more general than during 1907.

Dublin.—Disease reported during the week ended 27th June. No further appearance during the following week. During the weeks ended 11th July and 18th July one further district notified as affected. The occurrences in July were noticed when the potatoes were being dug for market. In one district the field crop was affected at the end of June. Spraying is fairly general.

Kildare.—No cases reported up to 11th July: from one district disease has been notified during the week ended 18th July. Spraying generally practised.

Kilkenny.—No disease reported up to week ended 4th July. Three cases during week ended 11th July, and no further spread up till 18th July. The symptoms are only slight, and are confined to garden plots. Spraying more general than last season.

King's County.—One case was reported during the week ended 4th July; only four appearances of disease notified up to 18th July. The attack is confined to gardens. Spraying is fairly well carried out.

Longford.—Two cases were reported during the week ended 4th July, and in two other districts disease was notified during week ended 11th July; after this date no further spread reported. The attacks are confined to gardens. Spraying has been generally done once, and second spraying is in progress in many districts.

Louth.—No reports of blight up to and including week ended 18th July. Spraying has been generally practised.

Meath.—Disease was reported from two districts during the week ended 4th July, and two fresh cases during week ended 11th July; since then no further spread has been observed. The attacks are confined to the garden crop. Spraying seems to be more general this season than last.

Queen's County.—No cases were reported up to the 11th July: since then notification of disease appearance has been received from two districts. Considerably more spraying being done than last year.

Westmeath.—An early outbreak was reported from Glasson on the 14th of June. Two more cases were reported on 4th July, and one other on 11th July: up to the week ended 18th July disease has been notified from four districts. The attacks are confined to garden plots. In most districts spraying has been more general than last season.

Wexford.—Two attacks were reported during the week ended 4th July, and one fresh case during that ended 11th July: in all, four districts have been notified up to 18th July. The blight is chiefly confined to the garden crop, but in a few cases the field crop is affected. Spraying is being more widely and more thoroughly done.

Wicklow.—No district reported as affected up to the present. Spraying more general than in 1907.

Summary for Leinster.—In general, it may be said that up to the 18th of July, the Province of Leinster has been comparatively free from blight attack. It seems to have made its earliest appearance in the counties of Kilkenny, Longford, Meath, and Westmeath.

MUNSTER.

Clare.—Up to 27th June only one case was reported. A fresh case was reported during week ended 4th July, and eight fresh cases during week ended 11th July: after this date the disease seems to have spread considerably, as out of a total of 59 sub-districts, 32 were reported as affected up till 18th July. Generally speaking, the attacks are confined to the garden crop, though in some districts the field crop has also been affected. Spraying more widely practised than last season, although reports show that this is not so in all districts.

Cork.—Two cases were reported from West Cork up to the 27th of June, and none from East Cork. During the week ended 4th

July, two fresh cases were reported from West Cork and three cases from East Cork, whilst during the week ended 11th July no fresh cases were reported from West Cork, but there were four new attacks in the East Division of the county. There were 15 districts reported as affected up till 18th July, as contrasted with 40 at the same period last year. The attacks are chiefly confined to the garden crop. Spraying has been general.

Kerry.—During the week ended 27th June three cases of blight were reported; for the week ended 4th July four fresh cases, and for the week ended 11th July four more: in all, sixteen districts have been notified up till 18th July. Both garden and field crops are attacked. Spraying is being more generally carried out than last season. The advantage of early spraying appears to have been more generally recognised.

Limerick.—Two cases of blight were reported during the week ended 4th July, and two fresh attacks during the week ended 11th July. Subsequently four more cases were reported, making a total on the 18th July of eight affected districts. Garden crop alone affected. Spraying more general than last year.

Tipperary.—Two cases were reported from the North Riding and one from the South Riding up to the 27th of June. No more spread of the disease was apparent up to the 11th of July, with the exception of one case in the North Riding: up till 18th July disease had been observed in ten districts. Chiefly the garden crop has been attacked. Spraying is more general in parts than last season.

Waterford.—Up to the 27th of June one case of blight was reported. There was a fresh case 4th July. During the week ended the 11th July six fresh cases were reported, and one in the week ended 18th July. Spraying, with the exceptions of one or two sub-districts, has been extensively carried out. In general, more spraying is being done than last season.

Summary for Munster.—Disease is much less widespread than at the same stage last season, with the single exception of County Clare, where the attack appears to have developed considerably within the last week. Spraying all over has been on the increase.

ULSTER.

Antrim.—Only one case was reported up to the 11th July: since then only one more district has been notified as affected. Chiefly confined to gardens. Spraying carried out more extensively than last year. The potato crop being late, only the first spraying is yet being done in many districts.

Armagh.—One case was reported up to the 4th July, and one fresh case occurred during the week ended 11th July; at the 18th July there were five districts in all reported. The attack has been chiefly confined to gardens and sheltered fields. Spraying is being thoroughly carried out. The crop is late in some districts.

Cavan.—Three instances of blight attack were reported during the week ended 11th July: only one fresh district has been notified since. Attack so far confined mainly to gardens. Spraying is being well carried out.

Donegal.—One case was reported during the week ended 4th July, and three fresh cases during the following week: in all eleven affected districts have been notified in the county. Disease has mostly shown itself in gardens, many of which are not sprayed. Spraying of the field crop has been well carried out.

Down.—One case only has been reported up to the 11th July: no other appearance of disease has been observed since. Spraying is being thoroughly practised.

Fermanagh.—No cases were reported up to 4th July, but during the following week disease was notified as having appeared in five districts: in three other districts the disease was observed during the week ended 18th July. The attack mostly confined to gardens, but in some instances also the field crop has been attacked. Spraying more general.

Londonderry.—Up to 4th July one case was reported. During the week ended 11th July three districts were reported. The attack was chiefly confined to early varieties in gardens, but in one case blight was reported in a portion of a field which was left unsprayed. Attention to spraying is on the increase.

Monaghan.—No cases of blight were reported up to 11th July: notification of disease appearance was received from five districts during the week ended 18th July. Disease chiefly confined to garden crops; farmers seem more disposed to adopt the precaution of spraying than last year.

Tyrone.—One case was reported up to the 11th of July: since then no further appearance of disease has been notified. Spraying has been well carried out.

Summary for Ulster.—The Northern area seems to be much less widely attacked than at the same stage last year. Donegal and Fermanagh are the chief centres of disease appearance up till 18th July.

CONNAUGHT.

Galway.—Up to the 20th June three cases of blight were reported. Eleven districts were notified as affected by disease attack up till June 27th, eight more up till July 4th, twenty up till 11th July; making forty-two in all up till 18th July. The attacks are generally confined to the garden crop, but in many districts it has appeared here and there in the field crop. Spraying is more general than last season. A few districts were late in spraying.

Leitrim.—During the week ended 4th July five cases of blight attack were reported, and five fresh cases the following week: only one additional district was notified for the week ended 18th July. The disease is chiefly confined to the garden crop, but in a few sub-districts it has appeared in the field crop. Spraying is fairly universal, and more practised than last season.

Mayo.—Up to the 27th June ten attacks were reported. During the week ended 4th July there were sixteen fresh cases, which, with sixteen during the following week, made a total of forty-two districts affected up till 18th July. The disease has been mostly confined to gardens in the earlier weeks, but later the field crops became affected. Spraying is more general than last season.

Roscommon.—Up to 27th June five cases were reported. Seven fresh sub-districts showed traces of the disease during the week ended 4th July, and nine during the following week; there has been no further spread of the disease up to the 18th of July. Sheltered gardens are the chief centres of attack, although in some districts the field crops are affected. In general, spraying has been carried out more thoroughly than last season.

Sligo.—Previous to 20th June one case was reported. During the week ended 27th June four fresh sub-districts showed slight symptoms, and for week ended 4th July one other district was reported; seven attacks were, however, reported for the week ended 11th July. Notification of disease appearance has been received from only one district since. The garden crop has been chiefly affected, but in a few cases the field crop is also beginning to show symptoms of attack.

Summary for Connaught.—The disease broke out early on the Western sea-board, but did not spread at all with the same rapidity as last year. Up to the present Mayo appears to be the county most widely affected. The first attacks on the field crops occurred in low-lying moory lands. The benefits of timely spraying seems

to be more generally recognised this season. In the West, the necessity for spraying has brought it to be regarded as an ordinary operation in the cultivation of the crop.

ACTION OF THE DEPARTMENT.

The action which has been taken by the Department this season to secure the more general use of spraying may be stated briefly as follows:—

Over 220,000 copies of the Department's leaflet (No. 14), dealing with the prevention of potato blight, have been printed and distributed through the National Schools and various other sources to farmers in every district in Ireland.

Placards reminding farmers of the necessity for early spraying, advising them to buy raw materials and prepare their own mixtures, and informing them that sulphate of copper is much cheaper this season, have been displayed in every district in Ireland, and have also been sent to National Schools and to Co-operative Societies.

The arrangements for testing the purity of samples of sulphate of copper and washing soda, at a nominal fee of 3*d.* per sample, have been continued, and over 450 samples have already been examined.

The County Instructors in Agriculture and in Horticulture, of whom over 60 are now employed, have given special attention to the encouragement of spraying.

Loans were granted for the purchase of approved horse-spraying machines to persons selected by County Committees, and who are prepared to spray their neighbours' potatoes at charges fixed by these Committees. Over 60 loans have already been granted.

County Committees have been empowered to purchase a limited number of hand-spraying machines, to be hired at a small daily charge to farmers and others in the poorer districts.

Thirty-eight overseers are employed by the Department in the congested areas of Counties Donegal, Mayo, Leitrim, Galway, Kerry and Cork, and, as forming part of their duties, these officers are required—

- (a) To repair spraying machines which are out of order, charging only the cost price of new parts used.
- (b) To sell spraying machines and spraying materials where such cannot be obtained locally at cost price to farmers within certain limits of valuation; and,
- (c) generally, to give demonstrations in spraying, as well as such instruction and advice as may be required by persons in their district.

In these counties over 1,400 spraying machines and about 150 tons of spraying materials have been distributed up to date.

Yellow-Blight in Potatoes.

The Department desire to direct attention to a disease which is causing increasing injury to the potato-crop. In the west of Ireland where the disease is most prevalent it is called "yellow-blight" to distinguish it from the ordinary "leaf-blight" or "black-blight" due to the fungus *Phytophthora infestans*. In the case of yellow-blight the foliage of the plant loses its green colour and becomes prematurely yellow. At first the green leaves become spotted yellow. Gradually the whole leaf turns yellow and in the end, long before its normal time, dies away. As the formation of tubers depends upon the action of healthy leaves, their early death means that the tubers will be small or, in very severe attacks, not formed at all. The yellowing of the foliage is a sign that the leaves themselves are being starved, and that the food-materials which they need to enable them to perform their functions are not forthcoming from the soil. This absence of proper food may be due to several causes, and so yellow-blight cannot be regarded, like black-blight, as due to one cause only. In some cases the yellowing is apparently caused by poverty of the soil. A top-dressing either of a complete mixture of artificial manures or of dung applied when the leaves are beginning to turn yellow has, in some cases, caused the crop to recover. In most cases, however, the cause is much more deep-seated, and unfortunately, is not so readily removed. Along with the yellowing of the foliage there may be a surface discoloration of the haulm or stem near the soil, so that the stem turns black and becomes soft and rotten. The tubers, when cut through lengthwise from heel to toe, show just below the skin a yellowish-brown streak, beginning at the heel. If the haulm be cut through crosswise, near its base, the three main veins in the stem will be seen to be dark and discoloured. These are all signs of yellow-blight, readily observable when the disease is present.

The disease is at present being investigated by the Department, and a more detailed report will appear in a later issue of this journal. Meantime farmers are invited to co-operate by sending particulars of the occurrence of yellow-blight in their districts. Specimens of diseased potato plants for identification can be sent by letter-post free when addressed to the Secretary of the Department of Agriculture and Technical Instruction for Ireland, 4 Upper Merrion-street, Dublin. The whole plant, including tubers, should be forwarded.

THE KEEPING OF EGG RECORDS.

A question which deserves much more attention than it has hitherto received in Ireland is that of keeping egg records. The great value of the egg and poultry industry to the country has been more fully realised within recent years, especially since the figures of Ireland's exports have been collected. From these figures it was seen that the export of eggs now reaches an estimated value of over £2,700,000, and that Ireland holds the first position in the open market of Great Britain, the annual value of Irish eggs exceeding that of the eggs exported from any foreign or colonial country to the United Kingdom. Further, as Ireland imports only a very small and apparently not an increasing quantity of eggs, the Irish market is also supplied by the home article, and this supply, therefore, has to be added to the export of eggs in estimating the annual value of the egg industry to the country.

A moderate estimate would place the value of eggs annually produced in Ireland at approximately £4,000,000. But while thus the production amounts to a very large annual sum, this could be greatly increased (1), by an increase in the number of poultry; (2) by improving the egg-laying strains in the country, and by using breeding stock only of such strains; and (3), by greater attention to proper feeding and housing. It is, however, chiefly with the second of these questions that we are here concerned. The improvement in the egg-laying strains is to be got (*a*) by careful selection of good laying strains, and (*b*) by weeding out unprofitable birds. In both sides of this work the keeping of systematic records is invaluable.

As regards present-day production, the annual average number of eggs produced per hen in Ireland is a matter of rough estimate. Some estimates would place it at 80, others as high as 100.

What brings down the average is the number of old hens, broody hens, ill-fed and ill-bred hens, and of hens which, though well-bred, are not of good laying strains. It must also be considered that probably one-fourth of the poultry in Ireland is bred chiefly for table purposes. These and other causes all lower the present average. But it is not too much to expect

that, with the increase in the number of birds of good laying strains, and with care given to weeding out the old hens and to proper feeding and housing of the flocks, the average of the country can be raised to 130 and even 150 eggs per hen. This would mean an increase of at least £1,500,000 sterling of an annual return, not allowing for any increase in the number of stock, or for the increased value of the same number of stock; and when, in addition to this, there is considered the development of winter egg production and the resulting increase in value, it is clear how great room there is for improvement in the egg production of Ireland. In advancing all this work a good system of egg records will be of great assistance and interest.

Now, as regards the question of records, there are different degrees of perfection, and the possibilities

**Possibilities of
Record Keeping.**

of record keeping depend on the system on which the fowls are kept. If all the fowl are in one miscellaneous flock, then the possibility of the record is strictly limited, and its information general; if the fowl are kept separate, according to breed, an advance is made in getting definite information; if, further, the pullets are kept in a different pen from the hens, still more particular information of practical value is got, especially where the flocks are small; and, lastly, if the trap-nest system is adopted, there is the possibility of a thoroughly exact and scientific record, which enables the egg-laying capacity of each bird to be determined, and a series of exact observations to be made on the birds of any breed. If such a record is continued for the life-time of the bird, it becomes possible to judge capacity not by one year's record, but, as it should be, by the two or, in some cases more, years for which the bird should be kept. The most thorough-going and reliable system is that of trap-nesting; and as it is of cardinal importance not only to weed out unprofitable birds but also to raise the new stock from the best-laying strains—constitution being also considered—the trap-nest system is for these purposes invaluable.

The small pen enables much to be fairly satisfactorily determined, but the trap-nest system is certain.

Trap Nest System. Unquestionably, it involves considerable additional attention and labour, both in minding the pens and keeping the records, but it is just from such labour

that valuable results are obtained and first-class stocks are built up, the market value of which increases every year. A few bad-laying hens lower considerably the profits of a pen, and the continuance of a poor strain is an even more serious consideration. What, moreover, has to be looked to is not simply the present trouble and the present year. It is the gain in real experience by the trap-nest system over a series of years when the poultry-keeper has the records of five and six years to go back on. And it is not simply the question of immediate profit, it is also the interest in the matter, an interest which, however, will in most cases show where profits also are to be realised. Therefore, every serious poultry-keeper should consider the possibility of trap-nesting his birds, or at least a flock of them.

The returns, which are summarised in the appended tables,* are a modest beginning in what is hoped will develop into a wide and continuous series of egg-laying records of the several chief poultry breeds in Ireland and also of cross-bred and mongrel flocks. It has been possible to start this record through the co-operation of the poultry instructors, the egg-station keepers, and a number of farmers and others who are interested in poultry-keeping. The number of records, especially in the case of certain breeds, is small, and the returns are not put forward as representative. But it has been considered advisable to publish the returns as they are, seeing that they would be of no small interest to poultry-keepers, and would induce attention and thought to the question of poultry records and the evidence they can furnish as to the capacity of different breeds. For convenience, also, a summary table of the present results has been drawn up, though it is desirable that, in considering such a summary, careful reference to the details in the particular tables be made, as it will frequently be found that the average has been considerably influenced by one or two exceptionally low, or in certain cases exceptionally high, returns. It should also be pointed out that it has not been possible to distinguish pullet records from hen records, as in general the flocks are mixed. But information was asked as to the number of pullets in the respective flocks, and, where furnished, these and other particulars likely to affect the yield of eggs have been entered in the "Remarks Column." In this and other directions it is hoped that considerably greater precision will be found possible in future returns.

* See pages 714-729.

Reference may be made to one other aspect of egg records, of which no account is here taken. It is not

**Record of Cost
of Food and Keep
necessary.**

sufficient to know the egg production of any flock—it is also necessary to know the cost of food and keep. It is very much to be desired that poultry-keepers should preserve a careful record of the cost of food and the expenditure incurred on their flocks, as such records are of great practical suggestiveness to the poultry-keepers themselves, and of interest for purposes of comparison with other records, both in this and in other countries. It is hoped that such records may be obtained from a number of poultry-keepers, and that it will be possible to develop also in a practical way in Ireland this important side of poultry statistics.

It should be pointed out also that the present returns are not in any sense comparable with egg-laying

**The Object of the
Returns.**

competition records. The flocks, as a whole, are above the present average of the country, both as regards the breed of the birds and in their feeding and keep. But they are not above what *should* be the average of the country, and they include a considerable number of ordinary farm flocks. The object of such returns is, in short, to furnish data as to the egg-laying capacity of different breeds under good average food and management.

The tables here published are for the six months: 1st January to 30th June, 1908. It is proposed to publish at the end of the year a complete account of the returns for the twelve months. Before that time, however, preparations will be completed for a new series of records for the year 1st October, 1908, to 30th September, 1909—this, rather than the calendar year, being the poultry year. The Department will be glad to know of farmers and poultry-keepers who would wish to have their names added to those who are willing to keep careful records of their egg yields during that year. The Department are prepared to supply gratis an egg record book in which such records can be kept.

EGG RECORD.—

SUMMARY

Name of Breed.	January.		February.		March.	
	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.
White Leghorns,	354	5·9	466	11·1	463	16·6
Brown Leghorns,	125	7·9	125	15·0	132	17·8
Black Leghorns,	4	3·5	4	12·0	4	15·0
Black Minorcas,	232	4·9	232	9·9	261	15·1
Buff Orpingtons,	277	9·6	309	12·2	306	15·0
White Orpingtons,	92	8·4	86	14·0	79	15·3
White Wyandottes,	319	6·5	307	10·5	323	15·7
Plymouth Rocks,	362	5·8	394	9·2	442	13·5
Faverolles,	335	6·0	334	9·3	334	14·4
Houdans,	73	2·0	74	7·5	71	13·8
Light Sussex,	37	5·1	37	8·8	37	9·3
Mixed Pure Breeds,	284	7·5	422	10·4	425	15·5
Pure and Cross Bred,	650	6·6	650	9·8	618	14·7
Cross Bred,	1,469	5·6	1,463	9·6	1,483	15·2
Mongrels,	356	4·2	521	7·8	561	12·8
Pure Bred, Cross Bred and Mongrels in Mixed Flocks.	1,078	4·5	1,204	9·5	1,189	13·9
Totals,	6,047	5·8	6,628	9·9	6,728	14·7

JANUARY-JUNE, 1908.

TABLE.

April.		May.		June.		Total of Monthly Averages.	Name of Breed.
Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.		
395	20.3	393	20.3	392	17.0	91.2	White Leghorns.
154	18.3	153	17.1	136	15.4	91.5	Brown Leghorns.
	No.	Return.					Black Leghorns.
276	18.7	274	20.5	273	13.4	82.5	Black Minorcas.
253	16.9	250	16.1	238	13.1	82.9	Buff Orpingtons.
93	17.0	80	16.7	69	15.3	86.7	White Orpingtons.
352	15.7	342	15.6	334	11.4	75.4	White Wyandottes.
395	15.2	382	15.0	371	10.0	68.7	Plymouth Rocks.
291	16.4	282	17.3	285	13.1	76.5	Faverolles.
72	18.5	70	19.5	68	14.3	75.6	Houdans.
34	9.5	30	11.4	17	12.6	56.7	Light Sussex.
354	18.1	347	16.4	341	13.6	81.5	Mixed Pure Breeds.
544	15.9	530	15.3	497	11.2	73.5	Pure and Cross Bred.
1,419	15.5	1,407	16.2	1,377	13.0	75.1	Cross Bred.
476	16.1	471	15.9	453	12.1	73.1	Mongrels.
1,021	16.2	1,001	16.2	947	12.7	73.0	All Sorts.
6,129	16.5	6,012	16.6	5,798	12.8	76.3	Totals.

JANUARY—JUNE, 1908.

LEGHORNS.

April.		May.		June.		Remarks.
Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	
30	16.2	30	15.4	30	12.1	
40	22.6	40	22.1	40	21.6	Fifteen hatched, 1906, twenty-five in 1907. Free range.
30	22.6	30	23.4	30	21.7	Hatched in 1906 and 1907. Free range.
36	20.3	36	24.1	40	18.6	Fourteen hatched in 1907, others in 1906. Free range.
29	23.9	27	22.7	26	21.5	Hatched in 1906 and 1907. Confined grass run.
36	20.1	36	21.3	34	18.2	Do.
10	20.5	10	24.2	10	15.6	Hatched in 1906 and 1907. Free range.
36	15.8	36	15.5	36	3.9	Free range.
		No return.				
30	18.8	30	18.8	30	22.0	(1) Weather unfavourable. Hatched in 1907.
32	20.3	32	22.4	32	18.2	All pullets. Large grass run.
		No return.				
20	22.9	20	22.3	20	15.4	Free range.
35	20.9	35	18.7	35	17.9	Four hens too young to lay in January.
24	19.4	24	17.4	22	11.1	Free range.
		No return.				Birds hatched in 1906.
7	17.7	7	13.0	7	7.1	Birds hatched in 1907.
395	20.3	393	20.3	392	17.0	

LEGHORNS.

30	20.7	30	21.6	30	20.6	Free range.
20	19.6	19	20.9	17	19.3	Hatched in 1906 and 1907.
29	18.0	29	13.4	24	12.5	Grass runs.
40	17.9	40	17.5	30	13.0	Free range.
29	14.6	29	12.0	29	11.5	Do.
6	24.3	6	20.1	6	19.0	
		No return.				
154	18.3	153	17.1	136	15.4	

refer to the first three months only.

BLACK

No.	January.		February.		March.	
	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.
1	4	3.5	4	12.0	4	15.0

BLACK

1	30	17.4	30	20.2	30	26.6
2	30	5.2	30	11.3	30	17.2
3	30	1.8	30	6.6	30	12.5
4	30	5.0	30	8.8	30	10.9
5	40	1.2	40	4.9	40	11.5
6	30	2.5	30	10.0	20	14.8
7	30	0.8	30	5.0	30	8.2
8	No record.		No record.		30	20.1
9	No return.					
10	6	6.0	6	11.3	6	16.6
11	6	13.5	6	10.0	6	14.0
Total,	232	4.9	232	9.9	261	15.1

BUFF

1	22	8.5	22	10.0	22	13.0
2	30	1.7	30	6.6	30	9.7
3	36	10.6	36	20.2	36	18.5
4	36	10.1	36	10.7	36	15.5
5	30	11.3	30	14.0	30	16.7
6	30	5.6	30	5.9	30	10.5
7	35	12.7	35	14.3	35	16.4
8	40	8.3	40	16.6	40	19.7
9	11	14.5	9	13.0	5	14.6
10	No record.		35	8.4	35	12.8
11	No return.					
12	7	6.0	7	10.9	7	15.4
Total,	277	9.6	309	12.2	306	15.0

NOTE.—The figure (1) indicates that the observations

LEGHORNS.

April.		May.		June.		Remarks.
Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	
	No return.					Hatched in April, 1906. Confined grass run.

MINORCAS.

30	27.4	30	28.7	30	26.5	Fourteen hatched in 1906, others in 1907. Free range.
30	14.0	30	22.6	30	6.1	
28	17.3	28	18.0	28	7.8	Eight hatched in 1906, others in 1907. Free range.
30	17.3	30	18.3	30	13.1	
39	13.4	37	15.3	36	8.6	Free range.
29	20.8	29	21.3	29	18.6	(1) Ground damp.
30	16.2	30	20.2	30	10.5	Eighteen hatched in 1906, others in 1907. Grass run.
30	20.1	30	17.0	30	12.9	
24	24.5	24	24.8	24	17.4	Hatched in 1906 and 1907. Free range.
		No return.				
6	21.0	6	20.0	6	18.7	Birds hatched in 1906.
276	18.7	274	20.5	273	13.4	Birds hatched in 1907.

ORPINGTONS.

		No return.				
26	13.5	22	10.9	20	8.3	Grass run.
27	23.0	30	20.8	32	14.7	Eight hens hatching in March. Free range.
33	19.3	33	20.6	33	16.4	
28	12.0	27	12.3	27	11.8	Grass run.
30	11.7	30	10.9	30	10.8	Free range.
30	23.1	27	17.6	32	8.3	
40	21.1	38	22.5	38	20.9	Do.
5	12.0	3	17.0	7	21.7	Hatched in February, 1907. Confined run.
		No return.				
27	12.1	34	12.3	13	12.6	Grass run. Hatched in 1906 and 1907.
7	12.3	6	10.7	6	10.2	
253	16.9	250	16.1	238	13.1	

refer to the first three months only.

WHITE

No.	January.		February.		March.	
	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.
1	6	19.7	5	3.6	6	16.0
2	30	5.8	25	13.3	18	26.2
3	30	11.4	30	13.5	30	14.6
4	19	5.2	19	12.5	19	5.8
5	7	7.6	7	12.6	6	15.0
6		No record.				
Total,	92	8.4	86	14.0	79	15.3

WHITE

1	3	22.0	2	15.0	2	22.0
2	27	9.4	26	14.5	26	15.1
3	30	2.4	30	4.4	30	10.5
4	45	8.4	45	9.2	45	16.2
5	21	13.1	21	17.5	21	20.9
6	30	4.5	30	7.0	30	10.7
7	8	11.6	8	15.4	6	18.3
8	50	7.7	40	15.6	40	20.4
9	45	4.2	45	10.7	45	14.0
10	30	1.1	30	6.8	30	13.2
11	30	4.3	30	8.5	30	17.9
12	No record.		No record.		18	18.4
13	No return.					
Total,	319	6.5	307	10.5	323	15.7

ORPINGTONS.

April.		May.		June.		Remarks.
Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	
	No return.					Hatched May, 1907. Confined run.
22	18.8	14	18.7	12	6.1	Grass run.
30	15.0	30	12.0	20	10.0	Free range.
	No return.					In January the pullets had not started laying; in March a number were "broody."
6	14.7	6	15.0	6	15.1	
35	17.1	30	20.8	31	18.4	
93	17.0	80	16.7	69	15.3	

WYANDOTTES.

	No return.					
25	17.2	24	18.8	24	10.7	Kept on a small grass run, with moveable house.
30	15.3	30	14.7	30	13.3	One hen "broody" in February, nine "broody" in March, four in April, six in May, and fifteen in June.
44	14.0	40	14.4	40	8.6	Young pullets only beginning to lay. Free range.
21	21.9	21	20.2	21	14.4	Thirty hatched in 1907, others in 1906. Free range.
30	8.4	30	5.4	28	3.8	All hatched in 1907. Confined grass run.
6	16.0	6	11.5	8	13.1	Ten went "broody" in January, five others in February, and five others in March. Large grass run. Twenty hatched in 1906, others in 1907.
40	19.5	40	22.0	40	14.3	Pullets hatched in March, 1907.
46	14.1	42	14.7	37	13.8	Ten rearing chickens in January, nine in February and eight in March. Free range.
30	15.8	29	14.6	29	6.8	Hatched in 1906 and 1907. Free range.
30	20.2	30	17.8	30	16.8	Two hens sitting in March. Free range.
20	19.8	20	18.9	20	14.7	Free range.
30	12.9	30	13.0	27	3.6	
352	15.7	342	15.6	334	11.4	

BARRED PLYMOUTH

No.	January.		February.		March.	
	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.
1	30	4.3	30	7.3	30	12.5
2	30	6.6	30	13.4	30	17.9
3	30	7.7	30	12.5	30	15.7
4	22	5.9	22	15.9	22	16.4
5	22	13.0	22	16.0	22	17.9
6	40	2.4	40	9.6	38	13.4
7	34	4.3	34	7.4	34	9.5
8	30	3.9	30	9.4	30	13.1
9	19	8.8	20	11.5	28	14.3
10	40	6.6	40	8.7	40	14.2
11	22	0.0	22	1.3	22	6.5
12	No record.		30	0.3	29	1.6
13	No record.		Record incomplete.		45	17.7
14	31	7.6	32	8.1	30	13.6
15			No return.			
16	6	1.0	6	6.3	6	9.1
17	6	16.0	6	13.0	6	18.3
Total,	362	5.8	394	9.2	442	13.5

FAVEROLLES.

1	30	3.3	30	8.5	30	10.6
2	40	10.8	40	11.6	40	15.7
3	30	4.2	30	7.6	30	13.2
4	11	14.0	10	15.6	10	17.8
5	22	8.9	22	16.0	22	24.1
6	35	6.4	35	9.2	35	18.7
7	60	3.0	60	5.6	60	8.6
8	25	0.1	25	7.4	25	19.0
9	29	11.3	29	14.5	29	14.7
10	40	4.8	40	7.4	40	12.9
11	6	2.0	6	6.1	6	11.0
12	7	9.0	7	11.0	7	13.1
Total,	335	6.0	334	9.8	334	14.4

ROCKS.

April.		May.		June.		Remarks.
Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	
30	18.4	30	15.2	30	9.2	Free range.
30	17.0	30	17.0	25	8.6	Twenty hatched in 1906, others in 1907. Free range.
30	15.8	29	18.0	26	13.6	Free range.
22	10.4	22	8.1	20	2.7	Four birds "broody" in March.
22	14.7	20	14.6	19	13.4	Ten hatched in 1906, others in 1907. Grass run.
38	14.6	40	13.1	40	8.1	Free range.
30	14.1	26	16.3	26	13.9	Four birds went "broody" on 10th March, and three more on 25th March. Free range.
29	11.7	29	11.5	29	7.6	Some hatched in March, 1906, and some in March and April, 1907. Free range.
	No return.					
	No return.					
22	16.5	22	15.0	22	13.0	Free range. Hatched in 1907.
28	5.4	25	9.6	25	0.7	
50	18.5	50	16.6	50	12.2	
33	14.4	28	15.7	28	11.4	Twenty hatched in 1907, thirteen in 1906, others prior to 1906. Free range.
25	20.0	25	19.6	25	12.4	Free range. Hatched in 1906 and 1907.
	No return.					Birds hatched in 1906.
6	18.7	6	17.0	6	12.5	Birds hatched in 1907.
395	15.2	382	15.0	371	10.0	

FAVEROLLES.

	No return.					
40	21.3	40	26.3	40	20.5	Twenty hatched in 1907, fifteen in 1906. Free range.
30	16.2	28	16.7	27	12.4	Grass run; very exposed.
10	19.6	10	19.6	10	15.8	One hen "broody" in March; birds hatched in March, 1907. Confined run.
22	18.4	22	16.0	22	10.4	Free range. Twelve hatched in 1906, ten in 1907.
35	16.8	35	16.4	35	12.8	Majority hatched in 1907.
60	11.4	55	13.4	53	10.6	Free range. Several "broody" in April, May, and June. One "broody" in January, two in February, and three in March. In grass runs. Thirty-four are pullets. Free range.
25	17.0	25	14.5	23	6.4	
29	15.7	29	16.9	29	16.7	
34	17.4	32	17.3	40	12.2	
	No return.					
6	20.0	6	17.0	6	17.3	
291	16.4	282	17.3	285	13.1	

HOUDANS.

No.	January.		February.		March.	
	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.
1	32	2.6	32	15.3	30	19.3
2	12	4.3	13	9.5	13	14.0
3	29	0.3	29	3.3	28	7.7
Total,	73	2.0	74	7.5	71	13.8

LIGHT

1	37	5.1	37	8.8	37	9.3
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MIXED PURE

1	35	5.2	35	12.5	35	18.4
2	50	11.5	50	11.5	50	14.6
3	120	3.6	130	9.4	125	14.6
4	49	4.1	46	9.7	38	13.4
5	No record.		68	9.4	68	14.6
6	No record.		63	8.5	63	16.6
7	No record.		No record.		20	15.6
8	30	22.0	30	18.5	26	19.8
Total,	284	7.5	422	10.4	425	15.5

NOTE.—The figure (1) indicates that the observations

HOUDANS.

April.		May.		June.		Remarks.
Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	
30	22.7	30	22.6	30	16.4	Twenty hatched in 1906, others in 1907. Free range. Hatched in 1907. Grass run. (1) Hens have very little shelter. Free range.
13	19.8	13	24.8	12	21.9	
29	13.5	27	13.5	26	8.3	
72	18.5	70	19.5	68	14.3	

SUSSEX.

34	9.5	30	11.4	17	12.6
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BREEDS.

34	16.8	33	15.3	33	9.4	Faverolles and Buff Orpingtons.
45	20.0	41	21.0	41	17.3	Black Minorcas and Plymouth Rocks.
120	19.1	120	17.0	118	14.4	White Leghorn Anconas, Houdans, Plymouth Rocks.
36	16.1	34	14.0	30	12.2	White Orpington, White Wyandottes, Black Leghorn, and Black Minorcas. Grass runs Six "broody" in January, four in February, and four in March.
No return.						Faverolles and Minorcas.
63	16.2	63	14.9	63	11.3	White Wyandottes and White Leghorns.
30	18.7	30	12.8	30	13.8	Faverolles and Buff Orpingtons.
26	19.0	26	19.5	26	16.0	Fourteen hatched in 1906, ten in 1907, others prior to 1906. Buff Orpingtons and Leghorns.
354	18.1	347	16.4	341	13.6	Two birds sitting in February, and eight sitting in March.

refer to the first three months only.

PURE AND

No.	January.		February.		March.	
	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.
1	40	5.6	40	11.6	40	14.5
2	13	11.8	13	13.5	13	14.2
3	90	5.8	88	13.5	80	20.7
4	80	5.4	70	6.3	67	12.2
5	168	5.7	165	9.5	158	13.5
6	58	12.5	58	9.0	58	9.7
7	56	8.2	48	12.5	42	15.1
8	60	4.8	59	6.8	56	13.8
9	45	3.3	45	5.5	40	15.0
10	40	3.8	40	10.5	40	14.5
11	No record.		24	16.3	24	20.0
Total,	650	6.6	650	9.8	618	14.7

CROSS

1	44	12.5	44	13.7	44	15.4
2	50	2.6	50	6.0	50	14.6
3	34	5.4	33	5.7	33	10.4
4	72	0.8	72	5.4	72	18.4
5	55	2.9	55	8.8	55	14.4
6	72	8.0	72	12.1	72	16.4
7	100	4.4	100	10.4	100	13.7
8	60	13.0	60	9.3	60	21.8
9	106	4.1	106	9.4	106	13.4
10	80	10.2	78	16.0	76	17.3
11	77	4.0	77	7.9	76	9.1
12	100	4.6	100	9.0	80	15.4
13	80	1.4	75	5.8	75	8.9
14	70	6.7	65	11.4	60	20.0
15	45	3.0	45	7.4	45	14.7
16	60	5.6	50	9.1	50	10.2
17	60	6.6	60	9.2	60	13.4
18	28	5.3	26	7.2	24	16.7
19	40	2.4	40	4.8	36	6.6
20	38	3.5	38	11.3	38	22.2
21	48	5.5	48	7.1	47	15.9
22	100	5.9	97	10.4	100	16.6

CROSS BRED.

April.		May.		June.		Remarks.
Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	
40	16.6	40	13.9	30	11.2	Eight P. Rocks, four Orpingtons, three Wyandottes, rest Cross-bred.
13	16.5	13	13.4	13	15.7	Three Faverolles, rest Cross-bred.
80	18.8	75	17.7	73	16.6	Twelve Minorcas, six Wyandottes.
65	18.1	60	17.8	55	13.5	Twelve P. Rocks, rest Cross-bred.
150	11.5	145	12.3	135	7.0	Orpingtons, Faverolles, and Cross-bred.
No return.						
35	17.8	35	16.8	30	15.0	
57	15.1	58	12.6	58	6.7	Twenty pullets did not start laying till March.
40	18.9	40	17.7	40	7.3	
40	17.4	40	16.6	40	12.7	Twenty Pure-bred, the others first Cross.
24	18.1	24	18.0	23	17.5	
544	15.9	530	15.3	497	11.2	

BRED.

45	14.1	45	10.0	45	6.5	
45	19.9	45	16.9	40	13.9	Half-bred White Leghorns, hatched 1906 and 1907. Free range.
33	12.2	31	15.6	30	14.5	
60	19.7	60	23.4	60	20.5	Grass runs.
60	11.9	58	12.1	55	9.7	Free range.
78	16.4	78	14.6	78	13.0	Free range.
90	15.5	90	17.5	88	14.9	Free range.
60	21.0	60	20.4	60	12.0	Free range.
100	16.1	80	18.0	80	13.8	Free range. Hatched 1906 and 1907.
76	19.2	70	20.7	63	20.8	
77	9.0	65	9.8	40	10.6	Free range. Majority hatched in 1906.
80	16.2	76	16.3	76	9.0	Confined runs.
70	19.1	65	18.7	65	14.5	Some of the pullets did not begin to lay till March. Birds neglected in January. Free range.
60	19.2	60	16.2	60	12.8	Free range.
45	15.3	45	13.4	42	11.8	Free range.
40	8.6	40	7.4	40	4.2	Free range.
60	14.5	50	15.4	50	17.8	
24	17.9	20	11.0	22	15.0	
36	10.5	36	12.8	34	13.9	Free range.
37	23.4	37	21.8	37	18.7	Twelve pullets had not started to lay in January, nine had not started in February, all were laying in March.
50	16.7	48	10.9	50	7.0	Free range.
100	11.1	100	21.1	100	15.3	Free range.

No.	January.		February.		March.	
	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.
23	50	13.7	46	20.5	50	21.6
24	No record.		26	9.4	26	16.7
25	No record.		No record.		48	16.6
26	No return.					
27	No return.					
Total,	1,469	5.6	1,463	9.6	1,483	15.2

MONGRELS.

1	65	6.9	75	7.6	79	10.1
2	69	3.4	60	5.4	60	17.6
3	60	3.1	60	11.2	60	15.0
4	44	7.8	44	10.2	42	12.5
5	No record.		59	6.0	59	9.5
6	No record.		105	5.6	143	11.1
7	18	9.4	18	17.5	18	18.8
8	100	1.3	100	7.4	100	17.3
9	No return.					
Total,	356	4.2	521	7.8	561	12.8

PURE-BRED, CROSS-BRED, AND

1	95	4.6	95	10.3	90	14.0
2	40	8.7	39	22.2	37	17.7
3	42	5.0	41	11.6	40	14.9
4	55	3.1	54	8.3	53	10.1
5	140	1.3	136	6.5	130	7.8
6	50	0.9	50	2.8	50	6.8
7	No record.		145	10.1	140	17.1
8			No return.			
9	85	2.4	83	7.2	80	18.1
10	150	3.8	145	8.6	140	12.6
11	50	10.5	50	11.0	60	16.7
12	100	6.5	95	11.1	95	16.5
13	62	7.8	61	11.2	58	17.5
14	42	6.6	42	15.1	40	23.9
15	72	1.3	70	4.0	69	7.8
16	40	8.6	40	12.0	45	15.0
17	35	3.0	35	3.7	35	3.3
18	20	10.7	23	24.6	27	26.6
Total,	1,078	4.5	1,204	9.5	1,189	13.9

BRED—continued.

April.		May.		June.		Remarks.
Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	Number of Hens.	Average Number of Eggs laid per Hen.	
No record.		40	21.0	40	17.6	A number of hens "broody" in May and June. In June the hens were beginning to moult.
No record.		25	13.0	25	14.3	
48	20.4	40	24.3	52	10.2	
20	17.5	17	13.9	15	15.8	
25	14.7	26	15.8	30	9.7	
1,419	15.5	1,407	16.2	1,377	13.0	

MONGRELS.

50	20.4	48	22.0	43	19.9	Free range.
58	16.8	58	16.2	54	12.7	Do.
62	17.4	62	17.8	60	15.4	Do.
	No return.					
59	8.5	59	8.8	59	8.1	Do.
113	16.4	111	13.6	108	8.4	Do.
	No return.					
100	18.2	100	19.1	96	14.4	Do.
34	14.3	33	13.3	33	11.6	Do.
476	16.1	471	15.9	453	12.1	

MONGRELS IN MIXED FLOCKS.

80	18.3	80	18.5	75	13.0	Free range.
36	16.9	34	18.5	35	13.2	Free range. Twenty-four hatched in 1907, others in 1906.
40	14.4	39	15.8	38	12.0	Free range.
53	11.7	53	11.3	53	7.5	Free range.
	No return.					
51	11.9	51	13.1	48	10.0	Free range.
140	18.9	135	19.1	133	16.9	Free range.
26	15.4	26	14.4	26	9.5	
76	20.4	74	20.7	70	14.0	Free range.
140	13.6	135	12.0	130	9.1	Do.
56	18.5	56	18.1	54	15.6	Do.
95	18.4	95	17.3	75	16.3	Free range. Forty-five hatched in 1907, others in 1906.
54	21.0	49	23.9	42	21.0	About twenty of the birds were pullets.
39	21.9	39	22.9	39	22.2	Free range.
68	12.1	68	13.0	62	5.1	Do.
40	14.6	40	14.6	40	12.2	Do.
	No return.					
27	26.0	27	27.0	27	19.8	
1,021	16.2	1,001	16.2	947	12.7	

THE IMPORTANCE OF MILK RECORDS.

The examination of the cost of production of milk and of its products—butter and cheese—is a matter

**The Extension of
the System
of Milk Records.**

which has been for many years receiving close attention in several countries, but especially in Denmark, Sweden, and Germany on the one hand, and on the other hand at certain centres in the United States and Canada, and also in Scotland. It is becoming more and more widely recognised that such inquiry is essential in order to determine where and how cost can be reduced and increasing competition can be met. So far, inquiry has brought out plainly the very great importance of certain lines of investigation, and has shown that reduced economy in production is to be obtained rather in one direction than in another.

In this work the keeping of records of milk yields lies at the foundation of the systematic development of economy. The great variations in the quantity and quality of the yield of cows and the very small variations between the cost of keep and care of the cow with a small yield and that of a cow with a high yield have shown that in no direction is economy so much to be sought as in the selection of the right animals. The weeding out of the low-yield animals is at the foundation of economic production. Other steps follow, but no economics and care in other directions can be taken proper advantage of unless the first step is taken of determining what animals in the herd are unprofitable and to what extent their yield falls below that of the other cows. The only way in which this can be satisfactorily determined is by the keeping of systematic records, and this practice, as a part of the regular business of the farmer, has become widely established in the dairy districts of the Scandinavian countries, and is steadily being adopted by farmers in other countries.

This is a question which concerns very closely Irish farmers. It

**Milk Production
in Ireland.**

concerns most deeply those in the dairying districts, but it is also a matter which should have the attention of all farmers, even if they are only keeping cows for the supplying of the needs of the homestead. Up to the present the records

of milk yields systematically kept in Ireland are few, and chiefly in connection with the agricultural colleges and with a few special herds of pure-bred cattle and by an occasional dairy farmer. Within the past two years the scheme for establishing a herd-book of Irish dairy cows has led to the keeping of milk records by over 100 farmers, and it is satisfactory to find that in several cases the system of keeping these records, required in the case of cows entered for registration, has been on the farmer's own initiative carried on also in the case of other cows which were not entered for registration—the value of the milk record for general dairy management having been recognised, as well as the fact that the small trouble which the record involves is much more than compensated for by the useful information obtained as to costs and approximate profit and loss per cow.

The importance of milk records is seen when the evidence as to the total production of milk in Ireland is considered. At present it is not possible to form anything more than a broad estimate of what is the average milk yield per cow. According to the statistical returns, there were in Ireland in 1907 1,560,000 cows. This total figure includes animals of the most varying class and quality. It includes, first of all, the heifers in calf. It includes a considerable number of cows which, from one cause or another, will not reach even a total annual record for the year of 300 gallons. It includes a very much larger number the yield of which does not reach 400 gallons. On the other hand, existing returns prove that there are cows in Ireland with milk records which compare with the best of other countries. In the record kept in connection with the dairy herd-book scheme there are several cows which have a yield exceeding 1,000 gallons, and in one case the very high record of 1,468·9 gallons was recorded for a period of forty-seven weeks in the year 1907, the cow being still in milk at the end of the year. In two other cases the records showed over 1,200 gallons, in each case for an incomplete lactation period of forty weeks. But while these records show a number of very high yields these are exceptional cases, and even among the better class of milch cattle the average yield is much lower. The records are given below* of the 210 best cows out of a total of approximately 600—these latter having, in turn, been chosen out and presented in many cases from a considerable number of other cows. The

* See pages 740-742.

210 cows show an average of 736·8 gallons, which to allow for incomplete lactation periods, may be raised to approximately 750 gallons; and it is of interest to note the proportion of the 210 which fall within the different divisions of 100 gallons.

Over 1,200.	1,000 to 1,200.	900 to 999.	800 to 899.	700 to 799.	600 to 699.	500 to 599.	Total Number.
3	9	16	39	50	45	48	210

These 210 cows represent only a small number of the cows in Ireland which annually exceed 500 gallons a year, but the proportion of such cattle among the 1,560,000 is limited. And against such cattle have to be placed the large number which give a low yield—heifers, old cows, sick cows, ill-fed cows, ill-bred cows. Allowance has to be made for all classes in estimating an average. Taking all classes and conditions of cows into consideration, it is doubtful if the average for the whole country exceeds 400 gallons; some would place it even lower. Others would place it as high as 450, or even slightly higher. Existing data are quite inadequate for the settlement of what is the real average yield of milk for the whole country, and for the present it must remain a question of opinion and estimate. We have before us the record of one private dairy herd in Ireland where an individual cow record has been kept since 1904, and where the value of such a record is plainly seen.

			Number of Cows.			Total Milk Yield per Cow.
1904,	...	...	55	...	...	480
1905,	...	...	53	...	...	508
1906,	...	...	51	...	...	522
1907,	...	...	55	...	...	532

The average in this case, even in the first year, may be taken to have been very considerably over the general average for the country. At another farm the average for six years during which a record was kept was found to be slightly over 490 gallons. The manager of this farm adds the remark, "The cows were above the average, and were a little better fed in the spring before they were put out to the grass, and in the fall of the year they got roots. I

would say that 400 gallons would be quite high enough on an average of the present yield in Ireland."

It may be assumed, provisionally, that the yield is from 400-420 gallons taking Ireland as a whole. Now the cow which yields 400 gallons of milk of average butter fat content in most cases may be said to do little more than pay her way. Taking at least the case of the majority of Irish cows which are yielding milk to be turned into butter, the average value of the butter fat and separated milk together cannot be placed at more than 5*d.* per gallon, that is a return of £8 6*s.* 8*d.*, and if to this is added the value of a calf and of the manure, a sum of £10 is approximately all that there is to pay for interest and capital, including risk of loss, feed and care, and the labour of milking and carting of milk. A cow, other than a heifer, that yields only 400 gallons is a poor investment both in capital and labour. What of the cow which is below 400 gallons? There ought to be no cows kept which are not up to 400 gallon milkers, and the great number of the cows should be as high as 500 gallon average, and a considerable proportion much higher. The average of the country should be at least 100 gallons higher than it is. This increase in itself would mean an addition to the value of the annual yield of over £3,000,000, and this does not include the increased selling value of the stock. One, therefore, of the first steps is to "weed" out the non-paying cows, and the great aid in doing this rightly is the keeping of the milk record.

It is important to see, then, what is involved in keeping a record.

The first main point to be ascertained is the quantity of milk given in the year, assuming for the present, that the milking period falls within the year. To keep this record in-

What is a Record. involves almost no expense and very little labour. All that is required in order to ascertain for practical purposes the milk yield of each cow is to put the morning and evening milking of each cow—one day in the week, say every Monday—on the scales, and to note down the net weight of milk recorded. It has been proved by the examination of many records that the difference in the amount recorded when daily weighings are made and when weekly weighings, multiplied by seven, are taken, is so small that for the purpose of determining the milking capacity of the cows it may be neglected. Even when the weighing is only done once in a fortnight, and the result multiplied by fourteen, the error is not very

serious, but each increase in the length of the period increases the uncertainty and error in the general results, and it may be therefore accepted as a convenient and satisfactory rule that the weighing of the morning and evening milk of each cow should be done once each week, the same day of the week being kept.

This is the first, and by far the most important, part in the keeping of a milk record. It is work which every

The First Step. farmer ought to do; and one may predict that many farmers, when once they have taken this simple but necessary first step of keeping a record of the quantity of milk given by each cow, will go on to take the second and third steps of the milk record.

There are three steps or stages of a milk record. One follows the other, and each is of great value in itself, and, taken together, they give what every dairyman should have with regard to his herd. But the first step can be taken without the second and third, and in itself is of great value, and no one should hesitate from taking the first step because he is not prepared to take the second and third steps.

The second step is the record of the quality of the milk. It is important not only to know the quantity of

The Second Step. each cow's milk, but also its quality as regards butter fat. For it is to the interest of the farmer to weed out not only the cows which give a small quantity, but also those which give poor quality. The existing milk records show that there is great variation in Ireland, as in other countries, in the butter-fat yielding power of different cows, and that this applies both to light and to heavy milkers. Some cows with a low yield have also a low average percentage of butter fat, others with a high yield in quantity have a low yield of butter fat, others with a high yield have a high yield of butter fat. Nothing can determine this satisfactorily, except the test made by the butter fat testing appliances. The dairy farmer who sends his milk to the creamery knows what the average percentage of butter fat is for his herd as a whole, but he does not know what is the butter fat yield of each cow, and until he knows he is not really master of the important fact with regard to his herd. He cannot say how each cow is paying. The butter fat yield in cows varies as a result of several circumstances, and considerable research has been made in recent years in different countries with a view

to determining, as far as possible, the extent of fluctuation in the quality of butter fat, and to ascertaining the causes which contribute to this effect. The question of the cause or causes of the change is a subject of considerable complexity, but the question of the actual fluctuation in butter fat is simply one of statistical evidence.

Such evidence has been collected on a considerable scale, especially in Denmark and Sweden, and also by Mr. Spier in connection with the records of the Milk Associations in Scotland, and it is plain that during a lactation period there are considerable fluctuations in the percentage of butter fat, and that care must be taken to see that the estimate of butter fat is not based on tests taken at a period of exceptionally low or high yields. Further, the taking of the butter fat test of each cow is a matter which, to be of use, requires to be very carefully and exactly done, and though small hand-testers can be purchased for use by the individual farmer, in most cases it will be desirable to have the tests made by one who is practised in the manipulation of this work. When farmers are members of or supply a creamery, an arrangement with it to have butter fat tests made of the milk of the several cows would seem the most simple and economic arrangement, the question of improving the butter fat supply being one in which the creamery itself is vitally interested. In this connection it should not be forgotten, however, that the taking of the sample of the milk of any cow requires attention, and the farmer should see to it that the sample is drawn not from either the first or last of the milking, but from the whole of the milk when it is properly mixed.

The third stage in working out a systematic milk record is the keeping an account of the quantity and

The Third Step. value of food consumed by the cow. Dairy-farm records which have been carefully kept show how great is the value of this side of the work. For, together with the record of the quantity and price of milk sold, it enables the farmer to gauge expenditure and income, and to watch carefully and methodically the return of milk from each cow for the food given.

In this connection reference may be made to the very interesting results shown in connection with the milk record societies in Scotland. Mr. Speir, in an account of the cost of food in the production of milk, published in the Journal of the Board of Agriculture.

September, 1907, points out the great variation which exists in the same district of Scotland in the cost per day for the keeping of cows during the months before the cows are sent to grass. In the Cumnock district, for instance, he states that on the farm on which the feeding was heaviest each gallon of milk cost 4·97*d.* for food alone; while on another, where the cost was lowest, each gallon cost 2·59*d.* for food, and the milk costing most had an average percentage of fat of 3·56 per cent. for the period, while the cheap milk had almost the same record, having 3·55 per cent. of butter fat. In the case of other districts, he points out that investigation has shown that the cost of producing milk varies even more markedly. It is a matter of very practical importance to each farmer that he should thoroughly investigate the question of cost per cow, and that he can only do by keeping a careful record. Nor will it be found that this involves much labour, and the time spent will be more than compensated for by the accurate information which the record furnishes and by the increased interest which it will create. The weeding out of the unprofitable cattle on the one hand and the determining as accurately as possible the most satisfactory and profitable feed on the other, are two main objects for which a milk record is invaluable.

Taking, then, the three factors of a milk record—(1) the quantity of milk, (2) the testing for butter fat, and (3) the record of the food consumed, the first and third of these, the quantity of milk and the quantity of food, can at least be kept and watched by the farmer himself, and at little expense of time or money.

What, then, is the practical value of the milk record, and what are the questions interesting a dairy farmer which it helps to solve?

The immediate value of the milk record is that it gives the farmer much more exact data than he otherwise will have as to the producing power of his various cows, as to which he should keep and which he should dispose of. Even

The Value of a Milk Record.

when nothing more than a record of the quantity of milk is kept this is of great value, especially when maintained year after year. For it enables the farmer to compare a cow against herself and against other cows, and to watch closely how different cows have been affected in successive seasons. The cow which milks heavily at first, but has a short lactation period, often proves on the showing of the

record sheet much less profitable than one which gives a lighter but more steady and continuous daily milking. Unless a record is kept of the total yield of each cow the farmer has only rough information, which gives room for a wide margin of error. The milk record is always recording and always bringing home the facts, and leaves no room for doubt. And when, together with the record of quantity, the farmer knows also the butter fat content or quality of the milk of each cow, and when, in addition, he has a record of the food given, he is in a position to say whether each cow is kept at a profit or a loss, and by how much so.

But the milk record system has much more than an immediate value affecting profit and loss. It provides

Problems of Heredity.

a method which is of the greatest importance for the study of the questions underlying the progress of dairying. Thus, existing records have already furnished valuable data as regards the prepotency of different animals and the transmission of milking powers; how far qualities, such as that of heavy milking or high butter fat yield, are hereditary and how far individual habits, such as irregularity, are handed down. Existing records show how cows have maintained a highly profitable record up to close on twenty years of age—not only as regards quantity, but also as regards quality. Is this power transmitted to their female offspring, and with what constancy? How far also are male offspring able to transmit this milking longevity to other stock? These are questions to which the milk records are furnishing at least the materials for an answer, and the evidence which they afford is rich in suggestion for the student of the problems which are exercising the thought of breeders, whether in the plant or the animal kingdom.

Again, the records furnish the means for scientific and impartial comparison of the capacity of different

The Comparison of Breeds.

breeds, and where the records are complete—that is, where quantity of milk, butter fat yield, and quantity and cost of food, are all recorded—the basis of comparison of the profitableness of different breeds is available. In all such matters, however, allowance must be duly made for other conditions, and the milk record has to be treated in a fair and common-sense way. For example, the record of a breed in one country, because it is higher than another breed in another country or part of the country, does not prove the

superiority of one breed to the other. But such investigations and comparisons, even when they do not lead to discoveries, stimulate improvement in practice. Apart, however, from the larger questions of heredity and breed, the milk record directs the attention of the dairy farmer to various aspects of the questions of profitable dairying. It enables him to give himself a better answer on many points which he has to consider in the selection and management of his herd.

What importance can be attached to the first lactation period of a heifer as an indication of her powers?

**Problems of
Selection and
Management.**

In what strains is development slow? How often is the good milker of one season the poor milker of another? The existing records seem to show that the chances of the

good milker keeping up a good record are greater than many dairy farmers would seem to believe. Again, how does the butter fat vary in the period of lactation? It is a common belief that this is lowest in the period just after calving, and that it gradually increases until it is highest at the period when the yield in quantity has fallen to its lowest. Yet test and observation show that this view has to be modified, and that in the early days, and even for the first one or two weeks after calving, the yield is above average in butter fat. What effect has age on butter fat yield? What are the years in which quantity and quality combined give the most profitable yield? The evidence of existing records already furnishes more certain information on these points than has been hitherto available, but it also proves the necessity of having still more complete knowledge of the facts on these questions.

Thus, apart altogether from the question of profit, there is a consideration which, to the genuine farmer,

**The Interest
of Inquiry.**

should appeal hardly less, viz., interest.

The method is one which makes the farmer an investigator, and which brings him into closer touch with the scientific problems which underlie farming practice. It is in this direction that the farming life has one of its great advantages over the industrial life in the broad, living, scientific interests with which it is and should be in touch. And the cultivating of these interests makes rather than unmakes the practical farmer. The men who are following out the milk record system are not the men who are failing in dairy farm work, but

among the best and most successful men. The nation which has been the pioneer in this work, and which has made it a national system—Denmark—is the most successful dairying nation in the world, and that despite national conditions of climate and soil which were much less favourable than those of this country. The question is one which lies in the hands of the farmers themselves. The keeping of a milk record is not simply a matter for the dairy farmer, it is for every farmer, whether he is selling any of his milk produce or not, and the keeping of such a record should be like the spraying of the potato, a regular farm operation, which is treated seriously as an integral part of the work of the farm.

Those who wish to study some of the recent work on Milk Records should obtain the valuable Reports of Mr. Speir on "Milk Records," Highland and Agricultural Society of Scotland. (William Blackwood & Sons, Publishers.)

The Department would be obliged if all persons in Ireland who are keeping milk records (other than in the case of cows entered for registration) would kindly send particulars of these records to the Secretary, Department of Agriculture and Technical Instruction for Ireland, 4 Upper Merrion-street, Dublin.

|TABLES.

MILK RECORDS, 1907.

No.	Period during which Records were kept.	Total Yield of Milk during period.	Average Yield of Milk per diem.	Per-centage of Butter Fat in Test Sample.†	No.	Period during which Records were kept.	Total Yield of Milk during period.	Average Yield of Milk per diem.	Per-centage of Butter Fat in Test Sample.†
	Weeks.	lbs.	lbs.			Weeks.	lbs.	lbs.	
1	47	14,689	44.6	3.7	36	40	8,767*	31.3	4.1
2	40	12,596	45.0	5.4	37	44	8,763*	28.4	3.5
3	40	12,537	44.8	4.5	38	46	8,760	27.2	6.1
4	52	11,697	32.1	4.4	39	45	8,715	27.6	3.6
5	41	11,483	40.0	3.7	40	37	8,702	33.6	4.2
6	50	11,203	32.0	3.9	41	31	8,673	40.0	4.3
7	37	11,137	43.0	4.0	42	45	8,638	27.4	5.4
8	40	10,804	38.6	4.0	43	52	8,601*	23.6	4.0
9	40	10,799	38.6	4.4	44	45	8,596	27.3	4.1
10	45	10,608*	33.6	4.2	45	37	8,515	32.8	4.0
11	52	10,171	27.9	4.7	46	36	8,501*	33.8	4.7
12	51	10,050*	28.1	4.1	47	40	8,474	30.3	4.2
13	43	9,857*	32.7	4.4	48	52	8,466*	23.3	4.1
14	43	9,796*	32.5	3.5	49	52	8,410	23.1	5.2
15	35	9,737*	39.7	3.9	50	42	8,379*	28.5	4.1
16	48	9,716	9.0	3.6	51	48	8,379*	24.9	4.4
17	41	9,625*	33.5	6.8	52	52	8,307	22.8	4.5
18	39	9,429	34.5	3.5	53	39	8,270	30.3	3.9
19	41	9,390	32.7	3.7	54	42	8,270*	28.1	3.5
20	42	9,352	31.9	4.0	55	44	8,267*	26.9	4.2
21	52	9,334	25.6	4.2	56	43	8,249*	27.4	6.0
22	46	9,331	29.0	3.5	57	40	8,218	25.8	4.2
23	47	9,310*	27.7	4.5	58	40	8,165	29.1	3.8
24	40	9,240*	33.0	3.8	59	40	8,151	29.1	4.5
25	40	9,198	32.8	4.1	60	55	8,099	21.0	4.4
26	46	9,168*	28.5	3.7	61	43	8,092	26.8	4.0
27	43	9,140*	30.4	4.4	62	38	8,086*	30.4	4.4
28	34	9,000	37.8	4.3	63	46	8,086*	25.1	4.6
29	36	8,844	35.1	4.6	64	29	8,032	39.6	3.9
30	51	8,841	24.7	4.3	65	38	8,008*	30.1	4.7
31	43	8,823	29.3	4.0	66	43	8,007	26.6	3.5
32	43	8,820	29.3	4.8	67	37	8,004	30.9	4.2
33	40	8,814*	31.5	3.9	68	24	7,992	47.5	4.3
34	38	8,806*	38.1	3.5	69	52	7,976*	21.9	4.0
35	40	8,774	31.3	4.3	70	42	7,969*	27.1	4.0

* The asterisk indicates that the Cow had completed a milking period.

† NOTE.—This represents a sample test. It is not the average percentage of butter-fat for the whole year. The data for such average are not available.

MILK RECORDS, 1907—continued.

No.	Period during which Records were kept.	Total Yield of Milk during period.	Average Yield of Milk per dem.	Per-centage of Butter Fat in Test Sample.†	No.	Period during which Records were kept.	Total Yield of Milk during period.	Average Yield of Milk per dem.	Per-centage of Butter Fat in Test Sample.†
	Weeks.	lbs.	lbs.			Weeks.	lbs.	lbs.	
71	46	7,062*	24.7	4.4	106	33	7,124	30.9	4.1
72	42	7,959	27.1	3.9	107	52	7,122	19.6	5.2
73	33	7,953*	34.4	4.1	108	41	7,117*	24.8	3.7
74	35	7,911*	32.3	3.6	109	39	7,098	26.0	3.5
75	36	7,889	31.3	4.6	110	40	7,091*	25.3	4.6
76	51	7,864	22.0	3.9	111	51	7,089	19.8	3.1
77	40	7,836	28.0	4.3	112	37	7,084*	27.4	4.1
78	42	7,819	26.0	3.9	113	34	7,080	29.9	3.8
79	40	7,812	27.9	3.8	114	35	7,070*	28.8	4.3
80	37	7,805	30.1	4.5	115	36	7,042*	28.0	4.1
81	46	7,747	24.1	4.8	116	40	7,042*	25.0	4.3
82	33	7,728*	33.4	3.5	117	44	7,038	22.8	4.0
83	32	7,724	34.5	3.7	118	31	6,956	32.0	3.5
84	45	7,700	24.4	3.9	119	41	6,916	24.1	4.0
85	43	7,694*	25.5	4.3	120	37	6,865	26.4	3.9
86	43	7,672*	25.5	3.6	121	27	6,828	36.0	3.5
87	40	7,649	27.3	4.5	122	46	6,818	21.2	4.0
88	40	7,640*	27.3	4.4	123	44	6,814	22.1	4.6
89	41	7,640	26.6	3.8	124	34	6,811*	28.6	4.1
90	33	7,623*	33.0	3.5	125	37	6,751	26.0	3.9
91	46	7,595*	23.6	4.2	126	35	6,748	27.5	4.0
92	37	7,542	29.1	3.8	127	33	6,678	28.9	4.5
93	52	7,523	20.7	5.1	128	37	6,678	25.7	3.6
94	35	7,476	30.5	4.0	129	28	6,660	34.0	4.8
95	37	7,393*	28.5	5.5	130	41	6,650	23.2	4.9
96	36	7,381*	29.3	3.6	131	33	6,578	28.4	3.8
97	38	7,378*	27.7	4.8	132	38	6,574*	24.7	4.9
98	32	7,295	32.5	4.5	133	36	6,503	25.8	3.8
99	32	7,276	32.4	3.5	134	21	6,485	44.1	4.5
100	36	7,273	28.8	4.0	135	36	6,471	25.7	4.0
101	47	7,259	22.1	4.4	136	47	6,471	19.7	3.6
102	34	7,248	30.4	4.5	137	31	6,466*	29.9	4.0
103	34	7,218	30.3	4.4	138	22	6,447	41.8	4.0
104	34	7,185	30.1	3.6	139	45	6,443	20.4	3.9
105	52	7,157	19.7	4.4	140	50	6,415*	18.3	4.0

* The asterisk indicates that the Cow had completed a milking period.

† NOTE.—This represents a sample test. It is not the average percentage of butter-fat for the whole year. The data requisite for such an average are not available.

MILK RECORDS, 1907—*continued.*

No.	Period during which Records were kept.	Total Yield of Milk during period.	Average Yield of Milk per diem.	Per-centage of Butter Fat in Test Sample.†	No.	Period during which Records were kept.	Total Yield of Milk during period.	Average Yield of Milk per diem.	Per-centage of Butter Fat in Test Sample.†
	Weeks.	lbs.	lbs.			Weeks.	lbs.	lbs.	
141	26	6,408	35.2	4.3	176	31	5,717*	26.3	5.6
142	46	6,369*	19.8	3.5	177	40	5,712*	20.4	6.0
143	51	6,363*	17.8	3.8	178	30	5,701*	27.1	4.1
144	34	6,354	23.3	4.1	179	40	5,687	20.3	3.8
145	37	6,338	24.5	3.8	180	39	5,677*	20.8	4.5
146	52	6,335	17.4	4.1	181	25	5,663	22.3	4.0
147	37	6,314	24.3	3.7	182	30	5,656	26.0	4.9
148	41	6,300*	21.9	4.6	183	23	5,614	34.8	4.6
149	37	6,296	24.3	4.3	184	38	5,577*	21.0	3.8
150	39	6,293*	22.7	4.6	185	36	5,551	22.0	4.1
151	39	6,261	22.9	4.3	187	40	5,512	19.7	4.0
152	30	6,230	29.7	4.1	186	37	5,512	21.3	4.4
153	41	6,223	21.7	4.1	188	32	5,470	24.4	4.1
154	36	6,093	24.6	4.0	189	39	5,455*	19.9	4.1
155	31	6,188	28.5	4.5	190	35	5,463	22.3	3.8
156	33	6,181*	26.7	4.6	191	23	5,397*	33.5	4.6
157	40	6,179	22.1	4.5	192	35	5,393	22.0	4.5
158	30	6,174	29.4	4.5	193	22	5,398	35.1	4.0
159	46	6,076*	19.0	4.1	194	40	5,377	19.2	4.0
160	43	6,051	20.1	3.6	195	36	5,369	21.3	3.9
161	32	6,020	26.8	3.6	196	47	5,837	16.2	3.8
162	40	6,016*	21.5	3.6	197	42	5,332	18.1	3.8
163	33	5,985	26.0	4.0	198	35	5,300*	21.6	4.4
164	35	5,978	24.4	4.0	199	36	5,281	20.9	4.6
165	30	5,967	28.4	4.8	200	52	5,279	14.5	4.9
166	31	5,915	27.2	5.3	201	37	5,276	20.4	3.5
167	40	5,911	21.1	3.1	202	31	5,132*	23.6	3.9
168	34	5,873*	24.7	4.4	203	48	5,120	15.2	3.5
169	35	5,866*	23.9	3.2	204	36	5,096	20.3	4.5
170	37	5,859	22.6	3.8	205	52	5,082	13.9	3.8
171	36	5,848	23.2	3.7	206	40	5,061*	18.0	4.4
172	41	5,838*	20.3	4.0	207	28	5,057	25.7	4.0
173	41	5,838	20.3	4.0	208	18	5,051	40.1	4.7
174	24	5,806	34.6	3.7	209	43	5,030*	16.7	3.7
175	37	5,729	22.1	4.3	210	28	5,001	25.5	4.7

* The asterisk indicates that the Cow had completed a milking period.

† NOTE.—This represents a sample test. It is not the average percentage of butter-fat for the whole year. The data for such an average are not available.

OFFICIAL DOCUMENTS.

I.—AGRICULTURE.Form A. 180 (a).**DEPARTMENT OF AGRICULTURE AND TECHNICAL
INSTRUCTION FOR IRELAND.****THE ALBERT AGRICULTURAL COLLEGE,
GLASNEVIN, DUBLIN.****SESSION 1908-9.**

The buildings at this College have recently been remodelled and equipped in the most modern manner. The farm, gardens, and laboratories provide every facility for a thorough course in technical agriculture, combined with such instruction in chemistry, physics, botany, and veterinary science as is necessary to the proper understanding of the principles underlying the most approved farm practice. Practical instruction in woodwork is also provided in suitable workshops.

All students are required to take part in the work of the fields and of the farmyard.

The Session for the year 1908-9 will commence on the 13th October, 1908, and terminate on the 31st August, 1909. There will be two intervals, during which the students return to their homes—one at Christmas, from the 23rd December, 1908, to the 12th January, 1909; the other at Easter, from the 8th to the 20th April, 1909.

Students must be not less than 17, nor more than 27 years of age, on the 1st September, 1908. Admission to the College is conditional on passing the entrance examination and furnishing evidence of good health and character.

ENTRANCE EXAMINATION.

The entrance examination will be held on the 8th September, 1908, at four centres, situated respectively in each of the provinces. Each applicant for admission will be notified in due course of the centre at which he should attend for examination.

No expenses will be allowed to candidates in respect of their attendance at the examination.

The subjects included in the examination will be as follows :

- (1.) *English*, including Dictation and Composition.
- (2.) *Arithmetic*, including calculations requiring a thorough knowledge of Weights and Measures, Decimal and Vulgar Fractions, Percentages, and Interest.
- (3.) *Mathematics*.—The elements of Mensuration and Algebra to Simple Equations.
- (4.) *Agriculture*.—The questions on this subject will be framed with a view to testing the knowledge acquired by the candidates through practical experience of farm work. No text-book is prescribed or recommended. The examination may be oral as well as written.

FEEs.

The fee for tuition, board, residence, laundry, and ordinary medical attendance during the entire Session will be :—

For students whose parents or guardians derive their means of living mainly from farming in Ireland.	£15
For students other than the foregoing.	£50

The fee is payable to the Principal in two instalments, viz., £10 (or £30) on entrance and the balance on the 1st February, 1909. In addition to the instalment of the fee payable on entrance each student must deposit with the Principal a sum of £2 to cover the cost of repairs to clothing, purchase of books and stationery. The unexpended balance, if any, of this deposit will be returned at the close of the Session.

OUTFIT.

Students are required to provide themselves with a proper outfit, particulars of which will be supplied to candidates successful at the entrance examination.

APPLICATIONS FOR ADMISSION.

Application must be made on the prescribed form to be obtained from—

THE DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION-STREET,
DUBLIN.

Applications will be dealt with in the order of their receipt in the Department's Offices. They should be forwarded as soon as possible after 1st June, and not later than the 15th August, 1908.

DEPARTMENT OF AGRICULTURE AND TECHNICAL INSTRUCTION FOR IRELAND.

APPRENTICESHIPS IN CHEESEMAKING.

The Department have been conducting for some years experiments in cheesemaking with the result that the manufacture of cheese has been taken up in several factories. The Department carry on the experiments at their Agricultural Station at Ballyhaise, County Cavan, where they provide facilities for the training, annually, of one or two young men as apprentices to cheesemaking. The apprentices take part in all the work connected with the manufacture of cheese, including milking, if required, and have to assist, in turn, in the operations which must necessarily be performed on Sundays.

The fee for instruction, board and residence at the Agricultural Station during one season from May to October, is £5, and is payable to the Superintendent of the Station on entrance.

Applicants for Apprenticeships must be not less than seventeen years of age, and must produce certificates of good health and character.

Applications should be made on the forms provided for the purpose which may be obtained from—

THE DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION,
UPPER MERRION-STREET,
DUBLIN.

FORM A. 240 (a)

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND.

PURE CULTURES FOR USE IN CREAMERIES.

Until further notice "Pure Cultures," for use in the manufacture of butter at Creameries, will be supplied by the Department on the following conditions:—

1. That the number of Creameries complying with the prescribed conditions is, at least, 25 at the beginning of each season, i.e., on 1st April.

2. That the Creamery to be supplied with the Culture is included in the list of those periodically visited by the Department's Instructors in Dairying, in accordance with the conditions set forth in the Department's Scheme for improvement in the management of Creameries. In the event of the Creamery being, at any time, removed from the list in question, in consequence of the Department's recommendations in regard to cleanliness and order not being complied with, or for any other reason, the supply of the Culture will be discontinued without refund of the fee, or of any portion thereof.

3. That the payment in advance of a fee of £2 2s. 0d.* will entitle a Creamery subject to compliance with the prescribed conditions to receive a supply of the Culture, at intervals of not less than one fortnight during one whole season, which will commence each year on 1st April and terminate on 31st March in the following year.

Note.—Creameries may, at any time during the year, be placed on the list of those to be supplied with the Culture during the remaining portion of the current season on payment of the full fee of £2 2s. 0d.*

4. That the following instructions regarding the treatment of the Culture, and other arrangements, are carefully carried out by the recipients of the Culture:—

INSTRUCTIONS FOR USING THE DEPARTMENT'S PURE CULTURE.

(1.) When the "Laboratory" Culture is received at the Creamery in warm weather the bottle containing it should be placed immediately in ice or in the cold store, and not opened until it is to be used.

(2.) All vessels and utensils necessary for the preparation or propagation of starters should be thoroughly cleaned and scalded immediately before use.

(3.) *Instructions for the preparation and treatment of the "Mother Culture":—*

(a.) Heat five gallons of fresh, clean separated milk to 195° F.

(b.) Cool down to 85° F.—75° F.

(c.) Shake the bottle containing the "Laboratory Culture," and add the whole of the contents to the five gallons of pasteurised separated milk.

Note.—Do not open the bottle until its contents can at once be added to the pasteurised separated milk. Before opening wipe the exterior of the bottle with a clean damp cloth to remove any dust.

(d.) Stir well, using a metal stirrer which has been scalded. When once thoroughly stirred the separated milk should not be stirred again until it is ripe and has been skimmed.

* As arrangements cannot be completed this year for the issue of the Culture until 1st June, the fee payable for the season ending 31st March, 1909, will be £1 15s. instead of £2 2s.

(e.) Cover the mouth of the vessel containing the separated milk with a double fold of scalded muslin which has been wrung out after scalding.

(f.) Keep the vessel at a temperature of about 70° F. for 12 to 24 hours, or until the contents are judged to be "ripe."

Note.—Regulate the time of adding the Laboratory Culture so as to secure a ripe starter at a time when it can be controlled or used.

(g.) When the "Mother Culture" is ripe, if it cannot at once be used, keep it chilled until it is used.

(h.) Before using skim off the top layer and stir well.

(4.) *Instructions for the preparation of the "starter" proper from the "Mother Culture."*

Note.—The quantity of "starter" to be prepared each day should be not less than 5 per cent. of the cream to be ripened (a larger quantity may be required in cold weather) with enough over to propagate a fresh supply of starter for the following day.

(a.) For each 100 gallons of cream take 5½ gallons of clean fresh separated milk; heat to about 195° F., and

(b.) Cool down to about 80° F. and, after skimming and stirring the Mother Culture, add the latter at the rate of about 5 per cent. (or 1 quart to each 5 gallons of pasteurised separated milk). Stir well and cover with clean scalded muslin.

(c.) Keep at a temperature of about 70° to 65° until ripe. When the starter is ripe, if it cannot at once be used, keep it chilled until it is used.

(d.) Before using, skim off the top layer and stir well.

(5.) It is advisable if possible to propagate both the "Mother Culture" and the "Starter" from day to day. Examine both critically each day, and discard either one or both at once if off flavour, or if they show any other sign of deterioration. It will be understood that only very general rules can be given for the every day preparation of a starter, and that in order to get the best results, quantities, time, and temperature must be regulated according to the conditions prevailing at the Creamery.

(6.) The box containing the bottle in which the Culture has been forwarded must in each case be returned to the Department by parcel post with the least possible delay. A sample of butter manufactured from the preceding supply (if any) of the Culture should be forwarded in the bottle *for the information of the Department only*, when the box is being returned to the Department. The postage on the boxes returned to the Department must be defrayed by the Creamery proprietors. A further supply of the Culture will not be forwarded by the Department unless the boxes used for forwarding the preceding supply are returned in due course.

5. Applications from Creameries for supplies of the Culture should be made on the prescribed Form A 240, copies of which may be had on application to

The Department of Agriculture and
Technical Instruction,
4, Upper Merrion-street, Dublin.

May, 1908.

No. 17892/08.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION STREET,
DUBLIN, 16th June, 1908.

SPRAYING MACHINES.

SIR,

Adverting to the Department's circular letter, dated the 12th July last, No. 19879/07, on the above subject, I have to state, for the information of your Committee, that there is reason to believe that the above was issued too late in the season for many of the Committees to make arrangements for the supply of spraying machines in time to be of any service to those for whom they were intended, and therefore it is considered advisable again to intimate to the Committees that the Department are prepared to sanction the purchase by the Committee from the joint fund of a *limited number* of hand-spraying machines to be hired at a small daily charge to small farmers and others in the poorer districts who do not possess sprayers.

The Committee to be responsible for the collection of fees and for the proper care of the machines. The services of the Itinerant Instructor in Agriculture and in Horticulture, if such have been appointed by your Committee, may of course be availed of in connection with this arrangement, as is now being done in regard to other spraying operations in the county.

The "Eclair" is, perhaps, the most satisfactory hand sprayer on the market, and only machines of this make should be purchased. These machines can, in many districts, be obtained through local traders.

The Department will be glad to learn what action your Committee propose to take in the matter.

I am, Sir,

Your obedient Servant,

T. P. GILL,
Secretary.

The Secretary,
County _____ Committee of Agriculture,
Courthouse.

No. 20889/08.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION STREET,
DUBLIN, 8th July, 1908.

IMPURE SPRAYING MATERIAL.

SIR,

With reference to the accompanying leaflet* on the Prevention of Potato Blight, a copy of which you have no doubt already received, the Department desire again to point out that the use of pure materials (Sulphate of Copper and Washing Soda) in making spraying mixtures is absolutely essential. If impure chemicals are utilised for the purpose, the mixture prepared therefrom will not only be less effective as a fungicide, but will in all likelihood injure the potato crop to a serious extent.

In this connection I have to state that it has come to the notice of the Department that Washing Soda of such a degree of impurity as to render it unfit for spraying purposes, although purchased on the guarantee of purity recommended by the Department, has been imported this season into Ireland. The Department are of the opinion that farmers using such impure material could proceed against the vendor under the Merchandise Marks Act, or sue him for damages where the crop on which the material was used was injured or inefficiently protected against disease.

In these circumstances it behoves all vendors of Washing Soda to test each delivery of this material for the presence of an undue amount of Sulphate of Soda (Glaubers Salts) notwithstanding the fact that the consignment may have been purchased on a guarantee of a high standard of purity.

I have to add that a qualitative test would suffice as a preliminary in most cases for the above purpose, and as such can easily be performed by a chemist or druggist the Department are not prepared to undertake this work for vendors.

I am, Sir,

Your obedient Servant,

T. P. GILL,
Secretary.

To the person or firm named in the address.

* Department's Leaflet No. 14.

No. 14093/08.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION STREET,
DUBLIN, 18th May, 1908.

AMERICAN GOOSEBERRY MILDEW AND BLACK
CURRANT MITE ORDER.

SIR,

I have to transmit herewith for your information the enclosed copy of the American Gooseberry Mildew and Black Currant Mite (Ireland) Order, 1908, and to direct attention to Clauses 5, 6 (2), and 7 (2), from which it will be observed that it is not now lawful to land in Ireland without a licence from the Department any Gooseberry or Black Currant Bush brought from any place outside Ireland.

Nurserymen and fruit-growers in Ireland have already suffered serious losses through the prevalence of the pests referred to, and the above Order was drafted by the Department with a view to eradicating these pests from this country. The object of the Department in putting such an Order into operation will, however, be defeated unless effective steps are taken to prevent the possibility of the further introduction of affected bushes from places outside Ireland, and to this end the Department look for the active co-operation of the various companies engaged in the carrying trade with Ireland.

The Department will accordingly feel obliged if you will be good enough to notify your agents and officers in Great Britain that they should not accept any parcel or package containing either Gooseberry or Currant Bushes consigned to a person in Ireland unless such parcel or package is accompanied by a statement signed by the consignor to the effect that he has obtained from this Department a licence authorising the landing of the bushes in Ireland.

I am, Sir,

Your obedient Servant,

T. P. GILL,

Secretary.

To the Shipping Companies named in the address.

No. 19358/08.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION STREET,

SIR,

DUBLIN, 24th June, 1908.

I have to transmit herewith, for your information, the accompanying copy of the American Gooseberry Mildew and Black Currant Mite (Ireland) Order, 1908, from which you will observe

that persons exposing for sale gooseberries which are affected with American Gooseberry Mildew render themselves liable on conviction to a penalty not exceeding £10 for each offence.

In this connection I have to state that the Department's officers have recently observed diseased gooseberries offered for sale in the Dublin and Belfast markets, and they have now been instructed to take proceedings under the above Order against any person who may persist in this practice or who may infringe any of the other provisions of the Order in question.

I have to express the hope that you will be so good as to co-operate with the Department in this matter by acquainting your suppliers of the provisions of the Order, further copies of which will be sent to you for distribution if desired.

A copy of the Department's Leaflet, No. 76, on the subject of the disease referred to, is enclosed.

I am, Sir,

Your obedient Servant,

T. P. GILL,

Secretary.

II.—TECHNICAL INSTRUCTION.

Form S. 190.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION STREET,
DUBLIN.

INDUSTRIAL SCHOLARSHIPS, 1908.

The Department will, in August, 1908, award not more than six Industrial Scholarships to persons engaged in industries, such as the Woollen, Linen, Leather and Tanning industries.

The object of these Scholarships is to enable selected persons, who must already have been engaged in one of the higher branches of the industry, to take a full course of instruction in an institution providing special courses of an approved character, with a view to training them for the management of such an industry. Candidates will be required to show that there is a reasonable expectation of their being able to find suitable employment in the industry in Ireland after the termination of their Scholarships.

The Scholarships will be tenable at some higher institution, to be approved by the Department, in which the industry and the principles underlying it, are taught. They will be of the value of £80 each, and may be renewed for a second or third year at the discretion of the Department.

The Scholarship holders will be selected by the Department on consideration of the qualifications and experience of the applicants.

Certificates of good character will be required from all applicants, and selected candidates will be required to produce a medical certificate of health and an authenticated copy of certificate of birth.

The decision of the Department in regard to the selection of candidates, or to any other question arising out of these Scholarships will be final.

Candidates must fill in and return, addressed to the Secretary of the Department, not later than the 31st July, 1908, Form S. 192, copies of which may be had on application.

Circular 55.

DEPARTMENT OF AGRICULTURE AND

TECHNICAL INSTRUCTION FOR IRELAND,

UPPER MERRION STREET,

DUBLIN, *May*, 1908.

SIR,

With reference to the classes conducted at the above-named School during the current academic year under the conditions of Sections I. and II. of the Regulations for Technical Schools and Science and Art Schools and Classes, I have to direct your attention to the terms of Sections I. (2) and II. (5), and to point out that it will be necessary to satisfy the Department's Inspector in regard to the general education and training of all pupils in respect of whom it is intended to claim grants.

The Department are of opinion that an examination of the documents and particulars to be submitted by the Managers in this connection could best be made by the Inspector when the claim for the school session has been compiled on Form S. 68 and its Flyleaves, and it is therefore requested that you will be good enough to have the claim completed at as early a date as possible.

The Department's Inspector of Technical Instruction for the District will arrange to visit the school upon learning from you the date by which the forms in question will be ready for examination.

I am, Sir,

Your obedient Servant,

T. P. GILL,

Secretary.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION STREET,

SIR, OR MADAM, DUBLIN, 11th June, 1908.

I have to request your attention to the returns required to be furnished, on Form S. 121 (copies of which are already in your possession), respecting the students presenting the courses of the Department's Programme for Day Secondary Schools for the purposes of the examinations of the Intermediate Education Board for Ireland. As the work of notifying the results of these examinations is expedited by the early receipt in the Offices of the Department of the particulars supplied by the Managers of Schools on the forms in question, it is requested that the returns from the above-named school may be completed and despatched as soon as possible after the 13th instant.

I am, Sir, or Madam,

Your obedient Servant,

T. P. GILL,
Secretary.

PROGRAMME OF EXPERIMENTAL SCIENCE,
DRAWING, MANUAL INSTRUCTION AND
DOMESTIC ECONOMY FOR DAY SECONDARY
SCHOOLS.

SESSION 1908-9.

I.—Official Calendar.

1908.

August-September.—Application for the renewal of recognition of classes to be submitted at least a fortnight before their re-opening (Form S. 44b.).

August 25th.—Latest date for applying for admission as a fee-paying student to the Royal College of Science, Dublin (Form S. 157).

September 15th, 16th, and 17th.—Examination for entrance to the Royal College of Science.

September 30th.—Latest date for submitting claims for attendance grants in respect of the Session 1907-8 (Form S. 62).

September 30th.—Latest date for submitting to Department application for the renewal of recognition of classes for the Session 1908-9 (Form S. 44b.).

Time-tables to be forwarded within fourteen days after the first meeting of the classes.

October 31st.—Pupils must have been registered as in attendance at each of the obligatory subjects of the preliminary, or of a special, course on or before this date. (See Regulations, Section III., paragraph 3).

1909.

February 13th.—Latest date for sending in statement of the number of pupils following the courses, and of the number to be presented for the Intermediate Education Board's Examinations (Form S. 127).

March 30th.—Latest date for applying for admission to the Summer Courses of Instruction to Teachers (See Form S. 41).

March-June.—“ Special ” Inspections.

April 29th.—Latest date for forwarding applications for admission to the examination for Science and Technological Scholarships (See Form S. 33).

May 1st.—Managers of Day Secondary Schools, not on the list of schools recognised for grant by the Department, should apply by this date for admission of their schools to this list if grants are to be claimed in respect of the Session 1909-10 (Form S. 44a.).

June 19th.—Returns showing the number of hours' instruction in the subjects of the Department's Programme, received by students presenting “ Experimental Science ” for the Intermediate Education Board's Examinations, to be forwarded to the Department by this date (Form S. 121).

June 29th and 30th, and July 1st.—Examinations for Science and Technological Scholarships.

July 6th.—Summer Courses for Teachers begin.

II.—Explanatory Circular to Managers and Principals of Day Secondary Schools.

DEPARTMENT OF AGRICULTURE AND
TECHNICAL INSTRUCTION FOR IRELAND,
UPPER MERRION-STREET, DUBLIN,

SIR, OR MADAM,

July, 1908.

The Regulations for the teaching of Experimental Science, Drawing, Manual Instruction, and Domestic Economy in Day Secondary Schools, which were in operation during the academic year 1907-8, will continue in force, without alteration, during the year 1908-9.

The Syllabuses of the courses of instruction, as well as the Prefatory Note to the Syllabuses in Experimental Science, may be obtained separately for general distribution among teachers.

It will be observed that the Syllabus of the Special Course in Drawing has been re-written and that the courses in Physiology and Hygiene, and in Physics, have been completely revised. In Physics the Third Year Syllabus may be regarded as constituting a General Physics Course preparatory to the more specialised treatment of the specific subjects forming the Fourth Year Course. In place of the single syllabus in Magnetism and Electricity in the Fourth Year, two syllabuses are offered, one dealing with Wave Motion, Sound, Light, and Radiant Heat; the other with Electricity and Magnetism. The chief object of these changes is to secure some much needed work in general Physics, and also to ensure that students who are unable to remain for a fourth year may receive at least some fundamental instruction in Magnetism and Electricity.

In regard to the cases of pupils who may, under Regulation II., 6, be working a second time through some of the Syllabuses of the Programme, attention is again directed to the fact that pupils who are capable of profiting by promotion to a higher course should not be permitted to repeat the previous year's course. The Department will withhold grants in respect of instruction given to pupils who may repeat the course of any year if, in the opinion of the Inspector, these pupils had made such progress as would enable them to take, with advantage, the work prescribed for the subsequent year, and in no case will pupils who were *presented* to the Department's Inspectors for the practical test for Honours candidates, in connection with the examinations of the Intermediate Education Board for Ireland, be accepted for grants on account of a repetition of the same course. As soon as the Managers have decided on the arrangements to be made for the classes to be

held during the session, the names of all pupils who propose to work a second time through one of the Syllabuses of the Programme should be notified to these Offices in order that the Department's decision in regard to the payment or otherwise of grants in each case may be issued to the Managers at the beginning of the school session.

The efficiency of the instruction will, as hitherto, be tested by inspection, as a rule without notice. During the latter part of the school session, however, notice will be given of a visit of Special Inspection for that session. At all visits it will be within the discretion of the Inspector to test any or all of the classes by practical exercises in the laboratory, or by *circa voce* examination of classes or of individuals, or by written examinations, or by a combination of these methods. It should be observed that the rates of payment may be increased by one-tenth or reduced by one or more tenths, as the Department, on consideration of the Inspector's report, may determine. Reduction by more tenths than one will be exceptional. In cases in which such exceptional treatment is necessary, the Department will in all probability adopt the alternative of giving a reasonable warning, and, unless marked improvement follows, will remove such a school from the list of those aided by the system of grants.

The qualifications required of teachers are set out in Circulars 16, 23, 24, and 25. The Department reserve the right to withdraw recognition of a teacher's qualifications should circumstances occur to render such a course desirable.

Summer Courses for Teachers will be continued as heretofore, but it is hoped that they will shortly have satisfied the need of qualifying teachers, and will develop into "Post Graduate." Courses on special subjects for those already qualified. The Course in Physics having been very considerably altered, the Department take this opportunity of informing teachers of this subject that the Irish Secondary Teachers' Science Certificate in Physics obtained previous to the issue of this circular letter will be accepted as evidence of qualification to give instruction in the revised Syllabus. The arrangements for the Summer Courses in Physics will, however, be revised for the future, and the third and fourth year courses of training will not coincide with the Third and Fourth Years' Syllabuses of the course. The third year training course will cover the work contained in those portions of the revised Syllabus marked "General Physics," "Heat," "Wave Motion," "Sound," and "Light and Radiant Heat." Teachers who successfully attend a Third Year Training course will, however, be permitted to give instruction in the Third Year's Syllabus only. The Fourth Year training course will cover the whole of the work in Electricity and Magnetism. Teachers who have successfully attended the two training courses will be provisionally recognised as

teachers of the whole of the Special Course in Physics; this provisional recognition may be made permanent in the usual manner, as indicated in Circular 23.

The details of the arrangements by which schools and pupils may obtain recognition under the regulations of the Intermediate Education Board for proficiency in Experimental Science, Drawing, and Domestic Economy, as well as the conditions required for a Pass in these subjects, are published in the Rules of that Board.

I am,

Sir. or Madam,

Your obedient Servant,

T. P. GILL,

Secretary.

III.—Regulations for the Administration and Distribution of Grants for Experimental Science, Drawing, Manual Instruction, and Domestic Economy in Day Secondary Schools in Ireland.

I.—SUBJECTS.

1. EXPERIMENTAL SCIENCE shall mean such a system of instruction in Physical and Natural Science as will involve the greater part of the work being done by the pupils themselves in an approved laboratory.

2. DRAWING shall mean a system of instruction in Free-hand, Object, Model, and Geometrical Drawing, and Modelling.

3. MANUAL INSTRUCTION shall include instruction in the use of tools employed in Wood or Metal-working, and drawing in connection therewith.

4. DOMESTIC ECONOMY shall include Cookery and Home-sewing, and may include Laundry-work or any other form of practical instruction in household management of which the Department may approve.

5. No scheme will be approved unless the Département are satisfied that due provision is made for the instruction of the pupils in the other main branches of a general education.

II —GRANTS.

Grants in respect of courses of instruction in Experimental Science, Drawing, Manual Instruction, and Domestic Economy, may be made, in accordance with the following

regulations, to Day Secondary Schools in which sufficient provision is made for instruction in the other main branches of a general education :—

1. Grants shall be payable in respect of attendances made by those students only who are twelve years of age on or before the 31st day of May in the calendar year in which the course is entered upon, and who have completed an education which would entitle them to be placed in the Sixth Class of a school under the Board of National Education in Ireland. Pupils on the roll of a National School are not eligible for attendance grants.

2. Grants shall be payable in respect of attendances made by the pupils of those schools only which have been approved by the Department.

3. Grants on the average attendance of duly qualified pupils will be made for each hour of instruction per week throughout the school year, according to the following scale :—

EXPERIMENTAL SCIENCE.—10s. for the first year of the course ; 12s. 6d. for the second year of the course ; 15s. for the third year of the course ; and 20s. for the fourth year of the course.

DOMESTIC ECONOMY (*as a Special Course*).—8s. for the third or fourth years of the course.

DRAWING.—5s. for the first year of the course ; 6s. for the second year of the course ; 7s. for the third or fourth years of the course.

MANUAL INSTRUCTION AND DOMESTIC ECONOMY (*Auxiliary Courses*).—6s. for the first year of the course ; 7s. for the second year of the course ; 8s. for the third or fourth years of the course.

4. The numbers on which grants for each subject are to be calculated, at the foregoing rates, shall be determined by adding together the total number of hours of attendance made by all the pupils in that subject (at the approved time-table hours), and dividing by forty, the normal school year being regarded as of forty weeks.

5. The syllabuses of instruction, "first year" and "second year" of the Preliminary, and "third year" and "fourth year" of the Special Courses, correspond with the "first year," "second year," etc., rates of payment.

6. Grants will be payable in respect of the attendances of any one pupil for not more than two years in the Syllabus of the First or Second Year of the Preliminary Course, or of the Third Year of any Special Course, and for not more than one year in the Syllabus of the Fourth Year of any Special Course. Payments will not be made in respect of

any one pupil for more than five years in all. It is not obligatory that the claims should be made in consecutive academic years.

7. Grants will not be paid in respect of pupils who are reported by the Department's Inspectors as unfit to attend the Courses in which they have been receiving instruction.

III.—CONDITIONS OF GRANTS.

1. The courses of instruction should begin in August or September of any year, and must be continuous throughout the school year. The hours per week devoted to the course must be fairly distributed throughout the week. In exceptional circumstances, where previous application has been made, the Department may sanction another arrangement. Deviations from the approved time-table, unless previously sanctioned, will be regarded as a serious irregularity.

2. Claims for attendance grants may be preferred on behalf of those students only who have punctually and regularly attended instruction in all the obligatory subjects of the Preliminary, or of a Special, course.

3. Claims for attendance grants may be preferred on behalf of those students only who have been registered as in attendance at instruction in **each** of the prescribed subjects on or before the **1st day of November** in any academic year.

4. Grants will not be payable in respect of the attendances of pupils of any school which, after working for one academic year in accordance with the Department's regulations, has not the two years' Preliminary Course in operation.

5. Grants will not be payable in respect of attendances at Manual Instruction or Domestic Economy (Auxiliary Courses) in any year, except in the case of pupils who have attended instruction in the Preliminary Course of Experimental Science and Drawing or in one of the subjects of a Special Course, in that year, in accordance with the Regulations.

6. Grants will not be payable in respect of the attendances of a pupil at instruction in a subject of the fourth year, which was not the subject in respect of which a claim was made on behalf of the same pupil in the third year; except in the case of Geology.

7. Grants will be made only upon a satisfactory report by an Inspector of the Department. The Inspector will satisfy himself not only that the attendances on which the

claim is based have actually been made, but also that the instruction is of a class superior to that given in Elementary Schools.

8. The grant to be made in respect of any subject of any year in accordance with the foregoing regulations, may, in exceptional cases, be increased by one-tenth when the Inspector of the Department is of opinion that the work is of conspicuous merit. It may also be reduced by one or more tenths for defects of equipment, or of organisation, or of instruction, or for any other cause which may tend to lessen the efficiency of the work done.

IV.—REGISTRATION.

Attendance registers will be supplied by the Department upon receipt of the form of application for recognition of the classes (Form S. 44); attendances not registered in the manner indicated on the official registers, or registered before the receipt of Form S. 44, will be disregarded. A class may not be said to have begun until attendances are so registered.

V.—COURSES OF INSTRUCTION.

1. The Courses of Instruction include :—

(a.) A PRELIMINARY (TWO YEAR) COURSE, which is obligatory on all pupils and on all schools claiming grants under these regulations, and

(b.) SPECIAL COURSES, which are optional.

2. THE PRELIMINARY (TWO YEAR) COURSE may vary according to the character of the school; but it shall include Experimental Science and Drawing; and not less than three hours per week shall be devoted to Experimental Science, and not less than one hour per week to Drawing.

In schools claiming grants for more than six hours' instruction in the Preliminary Course in any week, Manual Instruction or Domestic Economy must form part of the Preliminary Course; and, in such cases, at least one and a-half hours instruction per week must be devoted to one of those subjects.*

In Schools also which do not provide instruction in one of the Special Courses, or whose Special Course has not been recognised by the Department for attendance grants, Manual Instruction or Domestic Economy, with Experimental Science and Drawing, shall constitute the Preliminary Course; and in order that the Preliminary course in such schools may be recognised, the time-table must show that at least six hours' instruction per week is devoted to those three subjects.

3. A SPECIAL COURSE must include one, but may not include more than three, of the undermentioned subjects, to which Manual Instruction or Domestic Economy (unless taken as a Special Course) may be added. Managers will be allowed much latitude in selecting the subject or subjects most suitable to their own schools.

Managers desiring to have the special courses of their schools recognised will be required to show that a fair proportion of the pupils who have worked through the Preliminary Course are prepared to attend the Special Course; that not less than three hours per week are to be devoted to each subject of the Special Course; and that at least one-third of the time is to be assigned to theoretical instruction.

Not more than six hours per week may be considered when computing the total number of hours of attendance at a subject included in a Special Course.*

4. The subjects of the Preliminary and Special Courses shall be followed in the order prescribed in the Department's published Syllabuses, and pupils may not be admitted to any course, who have not worked satisfactorily through the preceding, or equivalent, courses.

5. The subjects of the Special Courses are :—

(1.) Physics : Third year—General Physics, Heat, and (optional) Electricity and Magnetism; fourth year—(a) Wave Motion, Sound, and Light and Radiant Heat, or (b) Electricity and Magnetism. (Either or both fourth year syllabuses may be taken).

(2.) Chemistry : Third year—Inorganic Chemistry; fourth year—Inorganic Chemistry, with some Elementary Organic Chemistry.

(3.) Mechanical Science : Third year syllabus; fourth year syllabus.

(4.) Natural Science :—

(a.) Botany : Third year syllabus; fourth year syllabus.

(b.) Physiology and Hygiene : Third year syllabus; fourth year syllabus.

(c.) Geology : A fourth year subject.

Each of these divisions of Natural Science will count as one subject in the manner indicated.

(5.) Domestic Economy (Special Course) : Third year syllabus; fourth year syllabus.

(6.) Drawing : Third year syllabus; fourth year syllabus.

* Attendances at Special Inspections may be claimed on, in addition to the hours set apart in the general time-table.

VI.—LABORATORIES.

No grant will be made for instruction unless due provision is made for experimental work in Science, on the part of the pupils, in properly equipped and approved laboratories.

VII.—DURATION OF LESSONS.

1. Practical instruction in Science, Manual Instruction and Domestic Economy, must be given in lessons of at least eighty minutes duration.

2. Lessons of less than forty minutes' duration will not be considered in computing the "total number of hours of attendance."

3. The minimum time per week recognised for grants on behalf of attendance at Manual Instruction or Domestic Economy is one and a-half hour.

4. The time-table of the school must be so arranged as to leave sufficient time to the teacher for preparation of laboratory work.

VIII.—SIZE OF CLASSES.

1. Not more than forty pupils shall be taken at a time by one teacher for Theoretical Instruction, nor more than twenty for Practical Instruction in any subject, unless an assistant recognised by the Department, is provided. In that case the number for Practical Instruction may be increased to thirty. Instruction in Drawing may, for this purpose, be regarded as theoretical instruction.

2. Where classes for practical instruction are small, concurrent instruction in two subjects may be exceptionally allowed, but the approval of the Department must be obtained in each case.

3. Concurrent instruction in the first and second year syllabuses of the Preliminary Course in Drawing will be allowed under one teacher where the number of pupils under instruction does not exceed thirty.

IX.—GENERAL CONDITIONS.

1. The qualifications of the teachers and assistant teachers, and the time-table of the school must be approved by the Department.

2. It shall be a condition of grants being made, that, except in the case of teachers who give their services gratuitously, a fixed salary shall be paid to the teachers of the classes, either in respect of these classes or of their work in the school as a whole; that a reasonable sum of money shall be provided for the upkeep of the premises; and that the grants obtained shall be paid into the school account and be used for improving the efficiency of the school.

3. That portion of the income of a school which is derived from grants in accordance with these regulations must be applied to such purposes as shall be approved by the Department. If at any time it appears that the application of the income is unsatisfactory, the assistance of the Department may be withdrawn. An account of the receipts and expenditure of each school in respect of these grants must be furnished to the Department annually, on a form to be had from the Secretary.

4. The Department reserve the right to withhold grants under these regulations from any school conducted for private profit in which the fees are, in the Department's opinion, excessive, or which is situated in a locality already sufficiently supplied with public institutions.

5. The decision of the Department in all questions arising in connection with the payment of grants under this programme must be final.

DEPARTMENT OF AGRICULTURE AND TECHNICAL INSTRUCTION FOR IRELAND.

PROGRAMME

OF THE

KILLARNEY SCHOOL OF HOUSEWIFERY.

SESSION, 1908-9.

STAFF.

Miss BRIDGET RUSSELL, - *Head Teacher.*
Miss LILY RUSSELL, - *Assistant Teacher and Matron.*
Mrs. CREAN, - *Assistant Teacher of Laundry Work.*

I. *Object of the School.*

The object of the School is to provide a systematic training in cookery, house maids' and parlour maids' work, needlework and laundrywork, such as would fit the pupils for domestic service or the care of a home.

II. *Subjects of the Course.*

The subjects of instruction comprise cookery, house maids' and parlour maids' work, needlework, including the care of house linen and simple dressmaking, laundry-work, elementary hygiene, and the keeping of simple household accounts.

III. *Certificates.*

Pupils who have satisfactorily worked through the full course extending over one year will be awarded a certificate.

IV. *Admission.*

The number of candidates that can be accommodated in the School is strictly limited.

Candidates will be admitted on the following dates:—1st August, 1st November, 1st February, or 1st May. They must be not less than 16 years of age on the day on which they seek admission to the School.

Candidates must have passed the fifth standard of the National Board, or its equivalent, and may be required to pass a test of fitness as to elementary education (see V. below).

Candidates must produce a medical certificate of health, and testimonials of good character from two responsible persons.

Admission will in the first instance be provisional only, candidates being required to undergo a probation of fourteen days, and if after this period they are found to be unsuitable they may be required to withdraw from the School.

The decision of the Department in regard to the admission of candidates will be final.

Forms of application for entrance may be obtained from the School.

V. *Entrance Test.*

The subjects of the test will be :—

1. An exercise in reading aloud,
2. Arithmetic.—The principles of vulgar and decimal fractions with examples involving addition, subtraction, multiplication, and division.
Methods of weighing and measuring.
Simple proportion.
The Metric system.
3. English.—A short letter or essay on some familiar subject. Ability to answer in fully formed sentences, questions on the meaning of words and phrases, and on the matter of a passage read.

VI. *School Year.*

The School is open from the 1st August to the 30th June.

Holidays—1st to 31st July, and Bank and Church Holidays.

VII. *Fees.*

An entrance fee of £1 must be paid by all pupils on their joining the School. This fee is not returnable to any pupil, whether she remains in the School or leaves at the close of the period of probation.

After the conclusion of the period of probation a fee of £4 is payable, and a similar fee is payable on each 1st January, 1st April, 1st August, and 1st October following.

The fee will cover residence, board, and instruction, and no part of it is returnable in the event of the course not being completed.

VIII. *General Regulations.*

Each pupil must be provided with a small box with lock and key, laundry bags, brushes and combs, a supply of under clothes, four large plain white aprons, three muslin aprons, two coarse aprons, two cotton dresses (housemaids'), one black dress, six white collars, three pairs cuffs, $4\frac{1}{2}$ inches deep, strong boots and two pairs house shoes.

Housemaids' dresses to be made of striped blue cotton, with bodice joined to skirt. Black dress must be quite plain. All dresses to have a hem 2 inches deep.

Pupils must keep themselves neat and tidy, and conform to the rules of the School.

Any pupil whose behaviour is unsatisfactory, or who fails to conform to the rules of the School, is liable to immediate dismissal.

IX. *Day Pupils.*

Should the accommodation permit, a limited number of day pupils may be admitted to the School.

These pupils will be admitted under the same conditions as the boarders, and must conform to all the rules of the School.

X. *Fees.*

Entrance Fee,	£0 5 0
Fee for Quarter (payable in advance on the 1st August, 1st November, 1st February, and 1st May),	£1 5 0
(These Fees include dinner and tea each day).	

XI. *Time Table of Day's Work.*

Pupils rise at 6.30 a.m.

Available for religious exercises, 7.0—8.0 a.m.

Breakfast at 8.0 a.m.

Class and household work, 9 a.m.—12.30 p.m.

Dinner, 12.45 p.m.

Class and household work, 2.0—4.0 p.m.

Tea, 4.30 p.m.

Class and household work, 6.30—7.30 p.m.

Supper, 7.30 p.m.

Pupils retire, 9.30 p.m.

III.—VETERINARY.

ALPHABETICAL LIST OF SHEEP DIPS

Which have been approved up to 13th April, 1908, by the Department of Agriculture and Technical Instruction for Ireland, under the Sheep Scab (Ireland) Order of 1905, in addition to those specified in the Second Schedule to that Order.

Name of Dip.	Name and Address of Manufacturer or Proprietor.	Proportion of dilution in water approved for each dip when used for Sheep Scab.	
		Quantity of Dip.	Number of Gallons of Water.
Antiseptic Dip.	{ The North of Ireland Chemical Company, Ltd., Belfast.	1 gallon.	50
Do., (hot water quality).		1 gallon.	25
Bailey's Powder Sheep Dip. . .		2 lbs.	25
Bailey's Fluid (Non-Poisonous) Sheep Dip and Cattle Wash. . .	{ William Bailey and Son, Horseley Fields, Works, Wolverhampton.	1 gallon.	50
* Battle's Fluid Sheep Dip. . .	{ Battle, Maltby, and Bower, Victoria Chemical Works, Lincoln.	1 gallon.	60
Battle's Powder Dip.		1 lb. 14 ozs.	20
Battle's Paste Dip, Non-Poisonous.		10 lbs.	50
Battle's Paste Dip, Poisonous. . .		10 lbs.	50
Bell and Riddle's Prepared Cresolene.	{ Bell and Riddle, Analytical Laboratory, Hexham.	1 gallon.	40
Bell and Riddle's Special Non-Arsenical Sheep Dip.		10 lbs.	50
Bell and Riddle's Improved Powder Dip and Fly Powder. . .		2½ lbs.	25½
Bell and Riddle's Soluble Oil Sheep and Lamb Dipping Composition.		10 lbs.	50
Bell and Riddle's "Triol" Dip. . .	{ Messrs. C. Zimmermann & Company, 9 and 10 St. Mary-at-Hill, London, E.C.	1 gallon.	90
Beta-Lysol Sheep Dip.		1 gallon.	50
Bigg's "Glenovis."	{ Thomas Bigg, 11½ Great Dover-street, London, S.E.	2 lbs.	16
Bigg's Paste Dip.		17 lbs.	100
Brittain's Powder Dip.		1 lb. 14 ozs. (1 packet).	20
Broderick's Powder Dip.	{ J. J. Broderick, Chemist, Fermoy.	1 lb. 14 ozs. (1 packet).	20
Clement's Sheep Dipping Fluid. .	{ A. Clements, Chemist and Druggist, The Medical Hall, Cootehill.	1 gallon.	70
" Climax " Poisonous Powder Sheep Dip.	{ The Boundary Chemical Co. Limited, Railway Arches, Lutob-street, Liverpool.	1 lb.	10
" Climax " Liquid Non-Poisonous Sheep Dip.		1 gallon.	50
Conway's Powder Dip.	{ J. J. Conway, Chemist, Naas.	1 lb. 14 ozs. (1 packet).	20
Cooke's Powder Dip.	{ William Cooke, The Medical Hall, Gorey.	1 lb. 14 ozs. (1 packet).	20
Cooper's Powder Dip.	{ R. H. Cooper, Medical, Hall Wexford.	1 lb. 14 ozs. (1 packet).	20
Cooper's " Albyn " Fluid Sheep Dip.	{ Messrs. W. Cooper and Nephews, Chemical Works, Berkhamsted.	1 gallon.	80
Cooper's Sheep Dipping Powder. .		30 ozs.	20
Cooper's Fluid.		1 gallon.	80
Cooper's " Albyn " Paste Dip. . .		1 lb.	5
Devlin's Powder Dip.	{ P. J. Devlin, L.P.S.I., Chemist, Thurles.	1 lb. 14 ozs. (1 packet).	20
Doyle's Powder Dip.	{ W. Doyle & Co., Registered Druggists, Athlone.	1 lb. 14 ozs. (1 packet).	20
Doyle Brothers' Powder Dip. . . .	{ Doyle Brothers, Registered Druggists, Athy.	1 lb. 14 ozs. (1 packet).	20

* The proportion of dilution shown in the case of this dip is that which the Department have now approved as regards that particular preparation in substitution for a different proportion approved some time ago.

ALPHABETICAL LIST OF SHEEP DIPS—*continued.*

Name of Dip.	Name and Address of Manufacturer or Proprietor.	Proportion of dilution in water approved for each dip when used for Sheep Scab.	
		Quantity of Dip.	Number of Gallons of Water.
Ewe Ram (Non-Poisonous) Sheep Dip.	Messrs. Reid and Robertson, 68, Hydepark-street, Glasgow.	25 lbs.	80
Ewe Ram (Poisonous) Sheep Dip.	Messrs. Reid and Robertson, 68, Hydepark-street, Glasgow.	25 lbs.	80
"Elswick" Sheep Dip, ..	Davis, Goodall, and Company, Newcastle-on-Tyne.	1 gallon,	60
"F. B. Sheep Dip," ..	Messrs. Fenner Brothers, Little Island, Cork.	1 part,	50 parts.
Farmer's Sheep Dip (No. 1, 2, 3).	Hall, Dunbar, and Company, St. Ninian's Works, Leith.	1½ gallons,	80
Fielding's Liquid Sheep Dip.	P. J. Fielding, F.C.S., 66, Patrick-street, Cork.	1 pint,	10
Goldon's Powder Dip, ..	Goldon & Co., Medical Hall, Birr.	1 lb. 14 ozs. (1 packet.)	20
"Golden Magnet" Sheep Dipping Powder.	Cope Brothers & Co., Ltd., Lord Nelson-street, Liverpool.	5 lbs.	10
Gorry's Powder Dip, ..	Joseph Gorry, 54 South Main-street, Naas.	30 ozs.	20
Grindley's "Pioneer Brand" Sheep Dip.	Grindley & Co., Ltd., Poplar, London, E.	1 gallon,	70
Hadden's Powder Dip, ..	Hadden's Medical Hall, Wexford, New Ross and Ennis-corthy.	1 lb. 14 ozs. (1 packet.)	20
Hamilton's Powder Sheep Dip.	W. J. Hamilton, Druggist, Gortin.	1 lb. 14 ozs. (1 packet.)	17
Harrington's Specific Sheep Dip.	Cork Chemical and Drug Co., Ltd., Cork.	1½ lbs.	13
"Harvey's Improved Sheep Dip."	J. W. Harvey, L.P.S.I., 31, Great George's-st., Cork.	1 gallon,	30
Hayward's Yellow Paste Dip.		1 lb.	8
Hayward's Combined Glycerine Sheep Dip.		1 lb.	5
Hayward's Glycerine Dip (Non-Poisonous Paste or Bloom).		1 lb.	5
Hayward's Liquid (or Fluid) Dip.	Messrs. Tomlinson and Hayward, Ltd., Lincoln.	1 gallon,	60
Hayward's "Glycerine" Dip.		1 lb.	4
Hayward's "Glycerine Cake" Dip.		1 lb.	5
Healy's Powder Dip, ..	Luke J. Healy, Chemist and Druggist, Drogheda.	1 lb. 14 ozs. (1 packet.)	20
Hewthorn's Wool Improving Sheep Dip.	F. Hewthorn & Co., Ltd., 70, Finsbury Pavement, London, E.C.	1 gallon,	48
Hibernia Sheep Dip, ..	Snowdon, Sons & Co., Ltd., Millwall, London, E.	1 gallon,	40
"Highland" Fluid Sheep Dip.	Alex. Robertson, Argyle Chemical Works, Oban, N.B.	1 gallon,	75
"Highland" Powder Sheep Dip.		1 lb. 14 ozs. (1 packet.)	17
"Ialine" Sheep Dip, ..	Burt, Bolton, and Haywood, Ltd., 64, Cannon-street, London.	1 gallon,	70
Jackson's Fluid Sheep Dip.		1 gallon, 29 ozs. (1 packet)	50
Jackson's Powder Sheep Dip.	Ethelbert Jackson and Company, Harbour road, Swansea.	when used in a hand bath 29 ozs. (1 packet).	16
Jeyes' Sheep Dip, ..	Jeyes' Sanitary Compounds Co., Ltd., 64, Cannon-street, London, E.C.	when used in a swim bath 1 gallon.	20
"John O'Gaunt" Fluid Dip.	Maudsley & Son, The Arcade, Lancaster.	1 gallon.	60
"John O'Gaunt" Paste Dip (No. 3).		10 lbs.	40
			30

ALPHABETICAL LIST OF SHEEP DIPS—*continued.*

Name of Dip.	Name and Address of Manufacturer or Proprietor.	Proportion of dilution in water approved for each dip when used for Sheep Scab.	
		Quantity of Dip.	Number of Gallons of Water.
Kennedy's Sheep Dipping Powder.	W. P. Kennedy, Borris, Co. Carlow.	30½ ozs. (1 packet).	15
Kiloh's Non-Poisonous Liquid Sheep Dip.	Messrs. Kiloh & Co., Ltd., Cork.	1 part.	50 parts.
Kiloh's Sheep Dipping Composition.		4 lbs.	13
Kiloh's Sheep Dipping Powder.		1½ lbs.	13
Lawes' Fluid Dip, ..	Lawes' Chemical Co., Ltd., 59, Mark-lane, London, E.C.	1 gallon.	40
Lawes' Kalyptos Sheep Dip.		5 lbs.	30
Lawes' Paste Dip, Poisonous.		1 lb.	4
Lawes' Paste Dip, Non-Poisonous.		1 lb.	4
Lawes' Powder Dip, ..		2 lbs.	20
Little's Non-Poisonous Cake Sheep Dip.	Morris, Little, and Son, Ltd., Doncaster.	1 lb.	2
Little's Non-Poisonous Fluid Sheep Dip.		1 gallon.	25
Little's Non-Poisonous Paste Sheep Dip.		1 lb.	2
Little's Poisonous Liquid Dip.		1 gallon.	50
Little's Poisonous Powder Sheep Dip.		1 lb. 14 ozs.	18½
"Long's Specific," ..	Messrs. Corry & Co., Ltd., 13 and 15, Finsbury-street, London, E.C.	1 gallon.	5
MacMahon's Powder Sheep Dip.	Mr. N. B. MacMahon, Killeter, Co. Tyrone.	1 lb. 14 ozs. (1 packet).	17
Magee's Royal Meath Powder Sheep Dip.	E. P. Magee, Veterinary Chemist, Kells.	1 lb. 14 ozs. (1 packet).	17
Mallen's Carbolic Paste Dip.	Mallen and Co., 89, Upper Dorset-street, and Blessington-lane, Dublin.	1 lb.	2½
Mullen's Powder Dip, ..		5 lbs.	14
Mansfield's Powder Dip, ..	G. Mansfield, Druggist, Clonmel.	1 lb. 14 ozs. (1 packet).	20
Martin's Hellebore and Carbolic Sheep Dip.	John Martin, 50, West Scotland-street, Glasgow.	1 lb.	3
M'Dougall's Improved Concentrated Liquid Sheep Dip.	M'Dougall, Bros., 68, Port-street, Manchester.	1 part.	100 parts.
M'Dougall's Grease Sheep Dip.		3 lbs.	5
M'Dougall's Sheep Dip (Paste or Hot Water Quality).		1 gallon.	50
M'Dougall's Sheep Dip (Cakes and Blocks) Hot Water Quality (patented).	M'Dougall, Bros., 68, Port-street, Manchester.	1 part.	50 parts.
M'Dougall's Arsenic Sulphur Dip.		5 lbs.	40
M'Dougall's Liquid Sheep Dip (Cold Water Quality).		1 gallon.	80
M'Guire's Liquid Non-Poisonous Sheep Dip.	Hugh M'Guire, Quay, Wexford.	1 gallon.	40
M'Hugh's Powder Dip, ..	J. J. M'Hugh, Medical Hall, Athy.	1 lb. 14 ozs. (1 packet).	20
M'Leod's Non-Poisonous Sheep Dip.	F. H. M'Leod and Sons, 61, Bishop-street, Anderston, Glasgow.	10 lbs.	25
M'Leod's "Universal" or Poisonous Sheep Dip.		10 lbs.	50
Miller's Sheep Dip, ..	R. Miller & Co., Glydesdale Works, 50, Victoria-road, Glasgow.	1 part.	80 parts.
Murtagh's Powder Dip, ..	Murtagh's Medical Hall, 37, Shop-street, Drogheda.	1 lb. 14 ozs. (1 packet).	20
"Nicotina" Sheep Dip, ..	Corry and Co., Limited, 13 and 15, Finsbury-street, London, E.C.	1 gallon.	50
"Niquas" Sheep Dip, ..		1 gallon.	35
Non-Poisonous Paste "Highland" Sheep Dip.	Alex. Robertson, Argyle Chemical Works, Oban, N.B.	1 lb.	5

ALPHABETICAL LIST OF SHEEP DIPS—*continued.*

Name of Dip.	Name and Address of Manufacturer or Proprietor.	Proportion of dilution in water approved for each dip when used for Sheep Scab.	
		Quantity of Dip.	Number of Gallons of Water.
Odam's Powder Dip, ..	Odam's Manure and Chemical Co., Ltd., 109, Fenchurch-street, London.	2 lbs.	20
Odam's Fluid Dip, ..		1 part.	50 parts.
"Ovizal" Fluid Sheep Dip, ..	Hay, Steven & Co., Kelvin-dock Chemical Works, Maryhill, near Glasgow.	1 gallon.	100
"Ozival" Paste Dip, ..		1 lb.	5
"Ozival" Powder Dip, ..		6 packets of dip (each containing 1 lb. 14 ozs of powder.)	100
Pattison's Special Paste Dip, Poisonous Paste "Highland" Sheep Dip.	G. Pattison, Cloughjordan, Alex. Robertson, Argyle Chemical Works, Oban, N.B.	1 lb. 1 lv.	8 5
Puritas Sheep Dipping Powder,	Puritas Disinfectants Co., Ltd., Evington, Valley-road, Leicester.	2 lbs.	16
Puritas Sheep Dipping Fluid,		1 part.	50 parts.
Quibell's Combined Paste Dip (Arsenical and Carbolic).	Quibell, Brothers, Limited, Newark, England.	1 lb.	5
Quibell's Liquid Sheep Dip, ..		1 gallon.	40
Quibell's Non-Poisonous Paste or Cake Dip,		5 lb.	25
Quibell's Powder Sheep Dip,		1 lb. 13 ozs. (1 packet).	17
		For long	wool sheep.
		1 lb. 13 ozs. (1 packet).	21
		For close	wool sheep.
"Rome's Sheep Bath," ..	H. F. Rome, Manufacturing Chemist, 1 and 3, Solway-street, Annan, N.B.	26 ozs.	42
Smith's Powder Sheep Dip, ..	H. M. and W. Smith, Merchants and Druggists, Roscrea.	1 lb. 13 ozs. (1 packet).	17
		For long	wool sheep.
		1 lb. 13 ozs. (1 packet).	21
		For close	wool sheep.
Snowdon Sheep Dip, ..	Snowdon, Sons and Co., Ltd., Millwall, London, E.	1 gallon.	40
Special Fly Dip, ..	The North of Ireland Chemical Co., Ltd., Belfast.	14 lbs.	90
Special "Highland" Fly Dip,	Alex. Robertson, Argyle Chemical Works, Oban, N.B.	1 lb.	5
Smyth's Powder Dip, ..	J. Smyth, Merchant, Wicklow.	1 lb. 14 ozs. (1 packet.)	20
"Sular" Sheep Dip, ..	The Chemical Union, Ltd., Ipswich.	2 lbs.	16
"Tarbol" Sheep Dip, ..		1 gallon.	50
Taylor's Powder Dip, ..	R. Taylor, Druggist, Tinsahely.	1 lb. 14 ozs. (1 packet.)	20
Torrens' Instantaneous Sheep Dipping Fluid.	J. M. Torrens, M.P.S.I., North Main-street, Youghal.	1 gallon.	80
"Tynedale" Sheep Dip, ..	John Ridley, Hexham Chemical Works, Hexham-on-Tyne.	10 lbs.	60
The "Universal" Sheep Dipping Powder.	The North of Ireland Chemical Co., Ltd., Belfast.	2 lbs.	20
Whelan's Powder Dip, ..	John M. Whelan, The Medical Hall, Galway.	1 lb. 14 ozs. (1 packet.)	20

ADDITIONAL LIST of DIPS approved by the Department of Agriculture and Technical Instruction for Ireland under the Sheep Scab (Ireland) Order of 1905.

NOTE.—This list is supplemental to the General List of Dips similarly approved up to 13th April, 1908.

Name of Dip.	Name and Address of Manufacturer or Proprietor.	Proportion of dilution in water approved for each dip when used for Sheep Scab.	
		Quantity of Dip.	Number of Gallons of Water.
Albion Powder Dip, ..	P. N. White, Chemist, Sligo,	1 lb. 14 ozs. (1 packet).	20
Bankhall Sheep Dip, ..	The Liverpool and Bankhall Seed Crushing and Chemical Company, Limited, 13, Knowsley Buildings, Exchange, Liverpool.	1 part, ..	50 parts.
" Delight " Sheep Dip, ..	Joseph Dee and Sons, 5, Cross-street, Manchester.	1 part, ..	100 parts.
Gorry's Fluid Dip, ..	Joseph Gorry, 54, South Main-street, Naas.	1 gallon,	60
Lawrie's Powder Dip, ..	Crawford, Cree, and Lawries, Limited, Glasgow.	1 lb. 14 ozs. (1 packet).	20
*Little's Non-Poisonous Fluid Sheep Dip.	Morris, Little and Son, Ltd., Doncaster.	1 gallon,	50
*Little's Poisonous Liquid Dip.	Do.,	1 gallon,	60
*Little's Non-poisonous Paste Sheep Dip.	Do.,	1 lb., ..	5
*Little's Non-Poisonous Cave Sheep Dip.	Do.,	1 lb., ..	5
McHugh's Fluid Dip, ..	J. J. McHugh, Medical Hall, Athy.	1 gallon,	60
McHugh's Paste Dip, Non-Poisonous.	Do.,	10 lbs.,	50
Puritas Concentrated Liquid Sheep Dip.	Puritas Disinfectants Co., Ltd., Evington, Valley-road, Leicester.	1 part, ..	80 parts.
Puritas Golden Paste Sheep Dip.	Do.,	5 lbs., ..	40
*Puritas Sheep Dipping Powder,	Do.,	2 lbs., ..	20
Puritas Sheep Dip (Hot Water Quality).	Do.,	1 part, ..	50 parts.
Wells' Dipping Compound Sheep Dip.	W. F. Wells and Son, 52, Upper Sackville-street, Dublin.	1 gallon,	80
White's Non-Poisonous Sheep	P. N. White, Chemist, Sligo,	10 lbs., ..	50

* The proportion of dilution shown in the case of the dips marked (*) is that which the Department have now approved as regards each of these dips in substitution for a different proportion approved some time ago.

NOTES AND MEMORANDA.

A meeting of the Agricultural Board was held at the Offices of the Department, Upper Merrion-street, Dublin, on Wednesday, the 6th May, 1908. The

Meetings of the

Boards:—

Agricultural Board.

following were present:—Mr. T. W. Russell, M.P., Vice-President of the Department (in the chair); Mr. Alex. L. Clark, J.P.; Very Rev. Canon Daly, D.D.; Mr. Robert Downes, J.P.; Colonel Nugent T. Everard, H.M.L.; His Grace the Most Reverend John Healy, D.D., Lord Archbishop of Tuam; Most Reverend Denis Kelly, D.D., Lord Bishop of Ross; Mr. William M'Donald, J.P.; Mr. H. de F. Montgomery, D.L.; and Mr. Alexander Robb, J.P.

Mr. T. P. Gill, Secretary of the Department; Mr. J. R. Campbell, B.Sc., Assistant Secretary in respect of Agriculture; Mr. George Fletcher, F.G.S., Assistant Secretary in respect of Technical Instruction; Mr. R. Cantrell, I.S.O., Chief Clerk; Mr. W. G. S. Adams, M.A., Superintendent of the Statistics and Intelligence Branch; Mr. J. S. Gordon, B.Sc., Chief Agricultural Inspector; Mr. J. P. Walsh, Clerk in Charge of Accounts; Mr. J. D. Daly, M.A. (who acted as Secretary to the meeting); and Mr. J. V. Coyle, were also present.

On the motion of Mr. William M'Donald, seconded by Mr. H. de F. Montgomery, the Board decided to convey to their colleague, Lord Monteagle, the expression of their sincere sympathy in the great loss that he had recently sustained.

Reports were considered with regard to the working of the Live Stock schemes, the purchase of woods through the Estates Commissioners, the Wexford Calf Mortality investigation, and Exhibitions of Irish produce in Great Britain. The Board had under discussion a financial statement, showing the position of the Endowment Fund, and also certain proposals regarding the basis of allocation of the Department's funds in aid of County Schemes. The following, among other matters, were also considered:—Agricultural Schools; Manual Instruction and Domestic Economy in rural districts; Schools of Rural Domestic Economy for Girls; purchase of woods in co-operation with local authorities, and proposals relating to inland fisheries.

A meeting of the Board of Technical Instruction was held on Thursday, the 7th May, 1908, at the Offices of the Department, Upper Merrion-street, Dublin.

Board of Technical Instruction. The following were present:—Mr. T. W. Russell, M.P., Vice-President of the Department (in the chair); the Most Reverend John Clancy, D.D., Lord Bishop of Elphin; Mr. James Crozier, J.P., V.S.; Mr. Christopher J. Dunn, J.P.; Mr. T. C. Harrington, M.P.; Sir James Henderson, A.M., D.L.; Alderman Michael Joyce, M.P.; Mr. William Macartney, J.P.; Mr. Patrick J. Magee; Mr. W. R. J. Molloy, J.P., M.R.I.A.; Mr. Richard Sisk, and Mr. Alexander Taylor.

Mr. T. P. Gill, Secretary of the Department; Mr. George Fletcher, F.G.S., Assistant Secretary in respect of Technical Instruction; Mr. W. G. S. Adams, M.A., Superintendent of the Statistics and Intelligence Branch; Mr. J. P. Walsh, Clerk in Charge of Accounts; Mr. J. D. Daly, M.A. (who acted as Secretary to the meeting); and Mr. A. Kelly, were also present.

Technical Instruction Schemes in respect of the Session 1908-9 for the following county areas were considered:—

Fermanagh, Longford, Mayo, and Queen's County.

The schemes having been discussed and approved, the Board concurred in the application of grants in aid thereof from the funds of the Department.

The following, among other matters, were also considered:—Summer Courses for Teachers; Irish Training School of Domestic Economy; Killarney School of Housewifery; Courses of Instruction for Foremen; Central Classes for Manual Training; Commercial Scholarships; Continuation Classes in Schools under the Board of National Education.

The necessity for obtaining additional funds to meet the pressing needs of Technical Instruction Committees throughout the country to enable them to erect suitable buildings was again under discussion. The following resolution, proposed by Sir James Henderson, A.M., D.L., and seconded by Mr. T. C. Harrington, M.P., was unanimously adopted:—

“That the Board of Technical Instruction regret to learn that the Treasury have refused the Department's application for funds to enable local authorities to erect suitable buildings for Technical Schools; and they desire to reiterate their conviction that Technical Instruction in Ireland is suffering a most grievous

injury so long as provision for this badly-needed building accommodation is not made available; and they request the Department to renew their efforts to press this matter on the Government."

A meeting of the Consultative Committee of Heads of Secondary Schools, appointed to confer with the Department with reference to the extended programmes and regulations for Science and Art Instruction, was held at the Offices of the Department on Friday, 12th June, 1908.

The proceedings commenced at 12 o'clock.

There were present:—Rev. William Anderson, M.A., Headmaster, Mountjoy School, Dublin (Representative of the Teachers' Guild); Very Rev. Michael Barrett, D.Ph., St. Colman's College, Fermoy (Representative of the Convent Schools Committee); Rev. Bro. Butler (Representative of Christian Brothers' Schools); Mr. Thomas A. Finch, M.A., Principal, Educational Institution, Dundalk (Representative of the Schoolmasters' Association); Mr. R. M. Jones, M.A., Principal, Royal Academical Institution, Belfast; Mr. James Moore, B.A., Principal, Masonic Orphan Boys' School, Clonskeagh; Miss E. Steele, Victoria College, Belfast (Representative of the Ulster Schoolmistresses' Association); Mrs. Thompson, M.A. (Representative of the Schoolmistresses' Association).

The following represented the Department:—Mr. George Fletcher, F.G.S., Assistant Secretary in respect of Technical Instruction; Mr. W. Vickers Dixon, B.A., Senior Inspector for Technical Instruction; Mr. J. D. Daly, M.A. (who acted as Secretary to the meeting); and Mr. A. Kelly.

The Committee had under consideration several matters relating to the Department's Programme of Experimental Science, Drawing, Manual Instruction, and Domestic Economy in Day Secondary Schools.

The Department's Summer Course for Teachers opened at 6 public centres and 17 Convent centres on Tuesday, the 7th July, and will continue until the 31st July. There are 15 public and 33 Convent Courses.

The Courses are attended by 393 teachers at the public Courses and by 166 teachers at the Convent Courses.

The staff of instructors engaged numbers 83; of these, 57 are appointed in connection with the public Courses, and 26 in connection with the Convent Courses.

Other Courses will begin on the 4th August, and continue until the 29th August. Of these, five will be public and five Convent Courses. The number of students attending will be approximately 100 at public centres and 30 at Convent centres, and the staff engaged, 13 and 4 respectively.

The following statement shows in comparison the figures of the Courses for 1907 and 1908:—

	1907.	1908.
Total Number of Courses { Public Convent	20	20
	41	38
	61	58
Total Number of Students { Public Courses Convent Courses	489	493
	252	196
	741	689
Number of Centres of Instruction { Public Convent	7	7
	23	19
	30	26
Staff of Instructors engaged { Public Courses Convent Courses	64	70
	38	30
	102	100

At the Dungarvan Petty Sessions, on the 2nd May, 1908, the Skipper of the steam trawler "Falmouth,"

Illegal Trawling. of Bristol, was convicted of illegal fishing

Heavy fine imposed. off the coast of Waterford, and was fined £100 and costs. It was also ordered that the net of the vessel should be forfeited.

The first of this season's Competitions was held on the 11th June, 1908. The judges were two in number,

Surprise Butter being representative butter merchants of

Competitions, 1908-9. Cork and Manchester. Prizes were awarded to the following competitors:—Fivemile-town and Brookboro' Co-operative Agricultural and Dairy Society,

Clones Co-operative Agricultural and Dairy Society, Moneymore Co-operative Agricultural and Dairy Society, Scottish Co-operative Wholesale Society (Enniskillen), Springfield Co-operative Agricultural and Dairy Society.

A special additional prize of 10s. was awarded in each case to the dairymaid or actual maker of an exhibit obtaining a first-class prize.

The Incorporated Society for the Destruction of Vermin, 95, Wigmore-street, London, W., are anxious to obtain accurate information regarding the nature and extent of the damage done by rats within the United Kingdom, and have prepared a schedule of questions which it is desired to place in the hands of all who are in a position to give information concerning temporary or permanent rat plagues; the damage done by rats, and the efforts made to exterminate these vermin. The Society request all who are interested in the matter to apply to the Society's offices, at the address given, for copies of the schedule of questions and, by supplying answers to the questions, to help the Society to exterminate these animals.

STATISTICAL TABLES.

FISHERY STATISTICS—

STATEMENT of the Total QUANTITY and VALUE of the FISH returned compared with the

	North Coast.				East Coast.			
	1908.		1907.		1908.		1907.	
	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.
	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
Brill, . . . . .	.	.	.	.	7	17	27	53
Soles,	1	2	1	3	59	232	39	129
Turbot, . . . . .	.	.	2	6	19	53	35	140
Total Prime Fish,	1	2	3	9	85	302	101	322
Cod,	129	62	43	31	1,146	855	985	737
Conger Eel, . . . . .	.	.	.	.	465	307	206	169
Haddock,	109	82	161	81	513	551	357	478
Hake, . . . . .	.	.	.	.	480	470	881	60
Herrings, . . . . .	.	.	.	.	47	26	972	197
Ling, . . . . .	.	.	.	.	532	242	512	469
Mackerel, . . . . .	.	.	.	.	.	.	.	.
Plaice,	273	345	230	191	1,216	1,534	1,142	1,162
Ray or Skate,	32	10	16	2	655	151	296	113
Sprats, . . . . .	.	.	.	.	.	.	.	.
Whiting,	25	12	33	17	617	583	464	418
All other except Shell Fish,	126	58	29	13	612	448	2,325	1,369
Total,	785	571	518	317	6,428	5,469	8,243	6,114
SHELL FISH:—	No.		No.		No.		No.	
Crabs,	6,018	33	3,322	21	660	4	171	1
Lobsters,	3,283	87	696	20	1,081	41	1,251	63
Mussels,	Cwts.	.	Cwts.	.	Cwts. 136	7	Cwts. 120	8
Oysters,	No.	.	No.	.	No. 4,347	8	No. 16,461	33
Other Shell Fish,	Cwts. 214	32	Cwts. 32	6	Cwts. 188	89	Cwts. 309	99
Total, . . . . .	.	162	.	47	.	152	.	204
Total Value of Fish landed, . . . . .	.	723	.	394	.	5,621	.	6,318

NOTE.—The above figures are subject to

IRELAND.

as landed on the IRISH COASTS during the month of April, 1908, as corresponding period in 1907.

South Coast.				West Coast.				Total.			
1908.		1907.		1908.		1907.		1908.		1907.	
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
6	14	.	.	.	.	54	174	13	31	81	227
31	144	41	191	251	1,118	220	969	312	1,496	301	1,292
4	14	4	14	64	150	41	168	87	217	82	328
41	172	45	205	315	1,268	315	1,311	442	1,744	464	1,847
85	62	12	8	862	270	217	162	2,222	1,258	1,257	938
6	2	10	3	52	18	49	13	523	327	264	185
12	5	18	7	1,220	607	606	407	1,974	1,245	1,145	976
.	.	.	.	100	32	.	.	580	502	384	630
684	158	455	83	2,160	482	1,760	451	2,900	666	3,187	731
248	183	35	27	1,130	362	302	124	1,910	787	849	610
22,065	8,086	20,867	6,805	4,755	2,086	3,118	1,446	26,820	10,172	24,015	8,251
161	192	211	273	437	274	202	267	2,087	2,345	1,815	1,893
16	4	4	1	521	90	104	16	1,224	255	420	162
.
66	16	204	44	185	103	215	131	893	714	916	610
208	122	156	97	962	302	145	76	1,938	939	3,155	1,555
23,692	9,002	22,047	7,553	12,708	5,903	7,065	4,404	43,513	20,945	37,871	18,418
No.	.	No.	.	No.	.	No.	.	No.	.	No.	.
.	.	.	.	.	.	.	.	6,678	37	3,493	22
.	.	90	4	1,250	45	3,615	139	5,564	176	5,652	226
Cwts.	.	Cwts.	.	Cwts.	.	Cwts.	.	Cwts.	.	Cwts.	.
.	.	.	.	.	.	46	2	136	7	166	10
No.	.	No.	.	No.	.	No.	.	No.	.	No.	.
4,158	8	.	.	882	1	.	.	9,387	17	16,461	33
Cwts.	.	Cwts.	.	Cwts.	.	Cwts.	.	Cwts.	.	Cwts.	.
155	80	206	22	642	138	858	144	1,199	339	1,405	271
.	88	.	26	.	184	.	285	.	576	.	562
.	9,090	.	7,579	.	6,067	.	4,689	.	21,521	.	18,980

correction in the Annual Returns.

FISHERY STATISTICS—

STATEMENT of the Total QUANTITY and VALUE of the FISH returned compared with the

	North Coast.				East Coast.			
	1908.		1907.		1908.		1907.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
Brill, . . . . .	.	.	.	.	10	15	23	55
Soles,	4	20	5	18	35	120	76	323
Turbot, . . . . .	.	.	.	.	23	86	25	105
Total Prime Fish, . . .	4	20	5	18	68	221	124	483
Cod,	235	50	412	63	559	412	671	633
Conger Eel,	4	2	.	.	574	317	373	226
Haddock,	263	106	149	67	577	487	489	610
Hake, . . . . .	.	.	.	.	472	392	395	639
Herrings,	33,410	21,320	41,093	23,400	4,423	1,421	3,906	1,307
Ling, . . . . .	.	.	.	.	592	261	797	707
Mackerel,	703	98	504	64	.	.	.	.
Plaice,	285	326	326	313	1,559	1,628	1,407	1,469
Ray or Skate,	52	13	31	7	698	172	518	216
Sprats, . . . . .	.	.	.	.	.	.	.	.
Whiting,	14	7	18	9	1,072	768	539	481
All other except Shell Fish, .	352	86	327	70	684	371	2,520	1,065
Total,	36,412	22,027	42,865	24,011	11,268	6,460	11,829	7,836
SHELL FISH :—	No.		No.		No.		No.	
Crabs,	14,990	57	8,018	57	13,481	31	17,022	91
Lobsters,	3,374	113	3,274	107	6,646	275	3,906	172
Mussels,	Cwts.		Cwts.		Cwts.		Cwts.	
	.	.	.	.	167	7	145	8
Oysters,	No.		No.		No.		No.	

Other Shell Fish,	Cwts.		Cwts.		Cwts.		Cwts.	
	116	17	145	25	151	56	543	189
Total, . . . . .	.	187	.	180	.	369	.	460
Total Value of Fish landed, .	.	22,214	.	24,200	.	6,819	.	8,346

NOTE.—The above figures are subject to

IRELAND.

as landed on the IRISH COASTS during the month of May, 1908, as corresponding period in 1907.

South Coast.				West Coast.				Total.			
1908.		1907.		1908.		1907.		1908.		1907.	
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
1	2	.	.	15	41	36	70	26	58	59	125
36	152	25	118	143	538	106	337	218	830	212	798
2	6	1	3	68	272	58	208	93	304	81	311
39	160	26	121	226	851	200	610	337	1,252	365	1,232
115	77	32	16	104	33	41	22	1,013	572	1,156	734
25	7	8	2	1	1	23	8	604	327	404	236
15	7	14	15	745	392	584	340	1,600	992	1,236	1,062
.	.	.	.	20	9	.	.	492	401	395	639
8,580	1,451	1,512	481	9,357	4,329	447	220	55,770	28,521	47,048	25,408
59	43	55	42	21	9	226	103	672	313	1,078	862
62,307	13,066	23,254	4,983	18,062	5,044	25,104	6,094	81,162	18,238	48,862	11,141
152	186	181	200	422	422	284	274	2,418	2,562	2,201	2,286
9	2	.	.	45	19	13	3	794	206	562	226
.
118	26	68	14	161	98	371	179	1,368	899	996	683
257	88	179	87	793	346	769	326	2,086	890	3,795	1,538
71,676	15,143	25,332	5,961	29,960	11,553	28,062	8,179	148,316	55,173	108,088	46,037
No.		No.		No.		No.		No.		No.	
120	1	141	2	.	.	.	.	28,591	89	25,781	150
1,437	54	1,149	40	3,787	121	4,775	168	15,244	563	13,104	467
Cwts.	.	Cwts.	.	Cwts.	.	Cwts.	.	Cwts.	7	Cwts.	8
No.		No.		No.		No.		No.		No.	
312	3	.	.	216	1	.	.	628	4	.	.
Cwts.		Cwts.		Cwts.		Cwts.		Cwts.		Cwts.	
210	21	220	22	694	134	1,047	168	1,171	238	1,958	404
.	79	.	64	.	256	.	336	.	891	.	1,049
.	15,222	.	6,025	.	11,809	.	8,515	.	56,094	.	47,086

correction in the Annual Returns.

FISHERY STATISTICS—

STATEMENT of the TOTAL QUANTITY and VALUE of the FISH returned as compared with the

	North Coast.				East Coast.			
	1908.		1907.		1908.		1907.	
	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.	Quan- tity.	Value.
	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
Brill, . . . . .	.	.	.	.	15	23	27	46
Soles,	7	30	7	26	33	138	68	262
Turbot, . . . . .	.	.	2	7	25	99	37	166
Total Prime Fish . . .	7	30	9	33	73	260	132	462
Cod,	28	12	.	.	672	414	496	577
Conger Eel, . . . . .	.	.	4	2	525	243	365	282
Haddock,	107	40	66	27	739	664	266	334
Hake, . . . . .	.	.	.	.	497	334	299	345
Herrings,	9,423	7,501	266	282	10,367	3,416	17,382	4,869
Ling, . . . . .	.	.	.	.	514	187	442	385
Mackerel,	187	19	40	2	.	.	3	1
Plaice,	259	260	255	233	1,691	1,745	1,367	1,372
Ray or Skate, . . . . .	.	.	2	1	658	163	339	207
Sprats, . . . . .	.	.	.	.	.	.	.	.
Whiting,	10	4	24	13	4,785	732	746	640
All other except Shell Fish, .	121	40	113	61	718	373	648	322
Total,	10,142	7,966	779	644	21,230	8,531	22,479	9,826
SHELL FISH:	No		No.		No.		No.	
Crabs,	20,696	63	18,318	69	31,822	70	26,065	142
Lobsters,	14,918	433	3,548	288	11,139	491	6,379	239
Mussels,	Cwts.		Cwts.		Cwts.		Cwts.	
	.	.	.	.	62	3	30	1
Oysters,	No.		No.		No.		No.	

Other Shell Fish,	Cwts.		Cwts.		Cwts.		Cwts.	
	176	26	192	31	186	73	362	136
Total, . . . . .	.	622	.	378	.	637	.	518
Total Value of Fish landed, .	.	8,428	.	1,022	.	9,168	.	10,344

NOTE.—The above figures are subject to

IRELAND.

landed on the IRISH COASTS during the Month of June, 1908, as corresponding period in 1907.

South Coast.				West Coast.				Total.			
1908.		1907.		1908.		1907.		1908.		1907.	
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£	Cwts.	£
1	2	.	.	19	34	33	53	35	59	60	98
43	158	46	188	133	386	107	389	216	742	228	865
2	7	3	11	15	290	29	108	92	402	71	281
46	197	49	199	217	716	169	550	343	1,203	359	1,244
427	133	28	11	160	41	19	8	1,287	605	543	596
79	34	3	2	5	2	10	3	609	279	382	289
35	28	10	10	357	196	460	253	1,229	928	802	624
25	22	14	15	60	22	9	4	582	378	316	364
5,613	1,558	1,539	560	3,686	1,067	469	183	28,939	13,542	19,656	5,924
62	55	22	18	17	11	24	8	593	253	488	411
57,282	10,304	17,920	3,865	52,542	9,660	18,702	4,565	110,011	19,983	36,665	8,433
166	237	132	159	547	449	364	328	2,663	2,691	2,113	2,092
41	9	7	2	16	3	14	3	715	175	362	213
.
66	15	49	16	232	105	377	156	5,093	856	1,196	825
280	108	192	92	1,317	535	815	339	2,436	1,066	1,768	804
64,022	12,705	19,965	4,919	59,136	12,807	21,432	6,400	154,550	41,919	64,655	21,819
No.		No.		No.		No.		No.		No.	
2,210	20	152	1	568	2	272	2	65,295	155	41,807	204
6,797	242	2,875	93	20,835	679	9,065	319	53,689	1,845	21,867	939
Cwts.	.	Cwts.	.	Cwts.	.	Cwts.	.	Cwts.	62	Cwts.	30
No.	.	No.	.	No.	.	No.	.	No.	.	No.	.
Cwts.	.	Cwts.	.	Cwts.	.	Cwts.	.	Cwts.	.	Cwts.	.
210	21	210	21	763	127	779	128	1,335	247	1,483	316
.	283	.	115	.	808	.	449	.	2,250	.	1,460
.	12,968	.	5,064	.	13,615	.	6,849	.	44,199	.	23,279

correction in the Annual Returns.

STATEMENT of the TOTAL QUANTITY of FISH landed on the ENGLISH and WELSH COASTS during the Month and Six Months ended 30th June, 1908, compared with the corresponding Periods of the Year 1907.

	June.		Six Months ended 30th June.	
	1908.	1907.	1908.	1907.
	QUANTITY.			
	Owts.	Owts.	Owts.	Owts.
Brill,	1,953	2,169	12,111	10,613
Soles,	6,066	6,212	32,393	31,912
Turbot,	6,249	6,242	32,030	32,670
Prime Fish not separately distinguished.	—	715	—	715
Total Prime Fish, ..	14,868	15,338	76,534	75,910
Bream,	6,727	4,160	37,741	33,333
Catfish,	9,510	8,695	39,572	47,999
Coalfish,	10,932	10,932	121,119	87,469
Ood,	148,261	153,832	1,213,415	1,290,389
Conger Eels,	3,641	3,274	21,869	25,521
Dabs,	9,209	9,562	49,845	49,170
Dogfish,	916	1,579	10,875	12,992
Dory,	187	197	894	1,151
Flounders or Flukes,	329	187	3,976	3,181
Gurnards,	10,534	6,889	56,887	54,305
Haddock,	194,003	213,943	1,168,749	1,291,704
Hake,	121,868	134,900	457,422	416,329
Halibut,	22,460	24,723	97,471	102,116
Latchets (Tubs),	554	536	1,169	1,581
Lemon Soles,	4,631	3,838	22,419	18,931
Ling,	15,240	10,128	126,944	90,272
Megrims,	5,427	4,148	42,176	37,320
Monks (or Anglers),	2,556	1,996	14,969	15,371
Mullet (Red),	23	74	522	384
Plaice,	92,112	88,444	383,168	372,431
Pollack,	1,073	447	9,076	7,125
Skates and Rays,	31,477	26,069	183,998	191,363
Torsk,	1,727	1,558	7,880	5,411
Whiting,	15,577	12,439	144,987	116,839
Witches,	2,059	2,737	20,717	14,329
Herrings,	79,798	71,101	163,844	139,687
Mackerel,	63,094	64,507	293,666	362,615
Mullet (Grey),	71	59	464	784
Pilchards,	19	29	19	723
Sprats,	—	—	17,493	16,176
Whitebait,	676	659	3,801	3,957
Fish not separately distinguished,...	30,352	29,746	209,830	184,116
Total,	899,911	905,718	4,993,511	5,071,183
Shell Fish:—	No.	No.	No.	No.
Crabs,	717,841	649,492	3,540,603	3,664,970
Lobsters,	81,001	71,239	283,906	245,140
Oysters,	393,225	641,600	14,214,337	15,583,050
Other Shell Fish,	Owts.	Owts.	Owts.	Owts.
	25,939	27,668	227,266	238,235

NOTE.—The figures for 1908 are subject to correction in the Annual Returns.

STATEMENT of the TOTAL VALUE of FISH landed on the ENGLISH and WELSH COASTS during the Month and Six Months ended 30th June, 1908, compared with the corresponding Periods of the Year 1907.

	June.		Six Months ended 30th June.	
	1908.	1907.	1908.	1907.
	VALUE.			
Brill,	£ 5,208	£ 5,671	£ 37,959	£ 35,512
Soles,	37,444	34,878	220,790	215,992
Turbot,	20,283	18,135	116,320	131,300
Prime Fish not separately distinguished.	—	1,210	—	1,210
Total Prime Fish, ...	62,933	59,894	375,069	384,014
Bream,	1,272	1,046	9,603	9,894
Outfish,	3,523	2,650	17,693	17,161
Coalfish,	2,564	3,286	30,085	29,401
Cod,	78,466	83,026	684,237	790,398
Conger Eels,	2,159	1,582	15,751	20,290
Dabs,	6,306	6,368	36,730	42,052
Dogfish,	287	632	2,961	3,681
Dory,	161	179	1,005	1,103
Flounders or Flukes,	202	130	2,218	2,155
Gurnards,	2,011	1,938	15,880	16,361
Haddock,	98,498	100,824	745,319	790,252
Hake,	62,310	54,596	278,830	257,191
Halibut,	31,282	31,595	172,741	167,608
Latchetts (Tubs),	282	315	766	1,083
Lemon Soles,	8,472	8,121	53,073	50,915
Ling,	7,074	5,907	62,123	51,958
Megrim,	3,501	3,045	32,679	31,805
Monks (or Anglers),	933	627	6,178	6,299
Mullet (Red),	76	224	1,282	981
Plaice,	77,090	76,968	440,273	415,862
Pollack,	481	229	4,591	4,440
Skates and Rays,	15,374	12,754	109,870	118,513
Torsk,	650	593	3,058	2,263
Whiting,	6,710	6,922	72,297	64,834
Witches,	2,311	2,439	24,291	17,485
Herrings,	17,326	24,507	33,494	42,194
Mackerel,	28,070	32,365	150,297	158,649
Mullet (Grey),	118	124	859	1,166
Pilchards,	16	23	16	220
Sprats,	—	—	3,093	2,530
Whitebait,	985	1,154	4,227	4,680
Fish not separately distinguished, ...	15,502	12,348	96,312	83,477
Total,	539,665	536,411	3,486,871	3,590,935
Shell Fish :—				
Crabs,	8,950	7,514	34,996	34,920
Lobsters,	3,874	3,344	12,940	11,925
Oysters,	686	1,260	43,206	48,744
Other Shell Fish,	9,425	10,051	55,180	64,627
Total,	22,935	22,169	146,322	160,216
Total value of all Fish, ...	562,600	558,580	3,633,193	3,751,151

NOTE.—The figures for 1908 are subject to correction in the Annual Returns.

STATEMENT of the TOTAL QUANTITY and VALUE of the FISH returned as landed on the SCOTTISH COASTS during the Month and Six Months ended 30th June, 1908, compared with the corresponding periods for the Year 1907.

	June.		Six Months ended 30th June.	
	1908.	1907.	1908.	1907.
QUANTITY.				
	Cwts.	Cwts.	Cwts.	Cwts.
Herrings,	1,087,725	1,194,333	1,741,950	2,067,015
Sprats, ... ..	.	.	3,563	2,670
Sparrings, ... ..	.	.	34	52
Mackerel,	1,075	542	8,052	5,958
Cod,	76,220	61,252	500,428	447,929
Ling,	18,647	14,873	106,867	73,333
Torsk (Tusk),	2,362	1,116	9,567	4,845
Saith (Coal Fish),	13,934	14,181	82,755	70,893
Haddock,	100,695	86,145	568,056	538,804
Whiting,	11,938	8,666	77,025	70,177
Conger Eel,	544	1,082	22,982	14,609
Turbot,	537	453	2,689	2,218
Halibut,	6,398	5,703	26,610	19,539
Lemon Soles,	3,432	2,947	13,558	13,743
Flounders, Plaice, Brill,	4,513	5,129	31,999	36,293
Skate and Rays,	7,999	6,983	84,750	54,763
Fish not separately distinguished, except Shell Fish,	9,285	9,966	54,684	50,433
Total,	1,345,305	1,413,361	3,535,389	3,470,774
Shell Fish:—	No.	No.	No.	No.
Crabs,	325,167	272,792	1,778,198	1,832,137
Lobsters,	85,823	82,514	306,750	307,664
Oysters, ... ..	.	.	274,370	405,990
	Cwts.	Cwts.	Cwts.	Cwts.
Clams,	8	165	5,794	4,199
Mussels,	5,715	5,197	44,983	55,252
Other Shell Fish,	3,702	3,538	30,627	26,146
VALUE.				
	£	£	£	£
Herrings,	169,120	311,549	363,531	549,089
Sprats, ... ..	.	.	617	570
Sparrings, ... ..	.	.	121	137
Mackerel,	131	904	1,403	1,673
Cod,	24,502	23,985	189,685	188,388
Ling,	4,961	3,982	32,681	26,284
Torsk (Tusk),	423	279	2,201	1,387
Saith (Coal Fish),	1,766	2,220	13,616	13,563
Haddock,	30,348	35,345	276,399	277,006
Whiting,	3,271	3,366	31,628	30,866
Conger Eel,	233	493	9,158	7,130
Turbot,	1,344	1,004	9,840	8,755
Halibut,	9,811	8,347	45,067	34,871
Lemon Soles,	6,062	5,592	29,282	30,077
Flounders, Plaice, Brill,	6,426	6,761	41,699	46,051
Skate and Rays,	1,292	1,545	22,624	18,073
Fish not separately distinguished, except Shell Fish,	3,210	4,133	28,363	29,234
Total,	262,800	408,816	1,036,946	1,263,154
Shell Fish:—				
Crabs,	2,355	1,759	11,086	8,598
Lobsters,	4,077	4,096	16,023	16,371
Oysters, ... ..	.	.	1,398	1,447
Clams, ... ..	.	15	890	607
Mussels,	290	271	2,215	3,266
Other Shell Fish,	1,072	1,143	7,814	6,806
Total,	7,791	7,244	39,395	37,095
Total Value of Fish landed,	270,594	416,102	1,076,340	1,300,249

NOTE.—The above figures are subject to correction in the Annual Returns.

STATEMENT of the TOTAL QUANTITY and VALUE of the FISH returned as landed on the IRISH COASTS during the Month and Six Months ended 30th June, 1908, compared with the corresponding Periods of the Year 1907.

	June.		Six Months ended 30th June.	
	1908.	1907.	1908.	1907.
QUANTITY.				
	Cwts.	Cwts.	Cwts.	Cwts.
Brill,	35	60	263	400
Sole,	216	226	1,393	1,502
Turbot,	92	71	390	406
Total Prime Fish,	343	359	2,046	2,308
Cod,	1,287	543	13,103	9,170
Conger Eel,	609	282	3,680	2,167
Haddock,	1,229	802	12,489	10,017
Hake,	582	316	3,479	2,171
Herrings,	28,949	19,656	121,854	87,501
Ling,	693	488	7,512	5,246
Mackerel,	110,011	36,665	227,546	132,644
Plaice,	2,663	2,118	12,719	10,529
Ray or Skate,	715	362	5,515	3,054
Sprats,	—	—	—	158
Whiting,	5,093	1,196	11,482	8,594
Fish not separately distinguished, except shell fish,	2,436	1,768	9,934	18,351
Total,	154,550	64,655	431,359	291,910
Shell Fish:—				
	No.	No.	No.	No.
Crabs,	55,295	44,807	90,951	74,608
Lobsters,	53,689	21,837	79,507	47,028
Oysters,	—	—	84,289	120,931
Mussels,				
	Cwts.	Cwts.	Cwts.	Cwts.
Other Shell Fish,	62	30	2,502	9,609
Total,	1,335	1,463	7,769	9,716
VALUE.				
	£	£	£	£
Brill,	59	98	474	886
Sole,	742	866	6,095	6,145
Turbot,	402	281	1,411	1,639
Total Prime Fish,	1,203	1,244	7,930	8,670
Cod,	605	596	7,115	6,363
Conger Eel,	279	289	1,998	1,506
Haddock,	928	624	7,726	6,543
Hake,	378	364	2,770	3,306
Herrings,	13,542	5,924	54,065	38,854
Ling,	263	411	3,027	3,836
Mackerel,	19,983	8,433	52,879	37,573
Plaice,	2,691	2,092	13,435	11,010
Ray or Skate,	175	213	1,271	1,335
Sprats,	—	—	—	24
Whiting,	856	825	5,039	5,751
Fish not separately distinguished, except shell fish,	1,056	804	4,687	8,665
Total,	41,949	21,819	161,922	133,536
Shell Fish:—				
	£	£	£	£
Crabs,	175	204	283	379
Lobsters,	1,845	939	2,780	1,989
Oysters,	—	—	146	201
Mussels,	3	1	107	543
Other Shell Fish,	247	316	1,761	2,097
Total,	2,250	1,460	5,077	5,159
Total Value of Fish Landed,	44,199	23,279	166,999	138,695

NOTE.—The above figures are subject to correction in Annual Returns.

**AVERAGE PRICES of CROPS, LIVE STOCK, MEAT, PROVISIONS, &c., for
the QUARTER ended 30th JUNE, 1908.**

PRODUCT.	PROVINCE.				IRELAND.	
	Leinster.	Munster.	Ulster.	Con-naught.	1908.	1907.
CROPS :—	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Wheat, per 112 lbs.	—	—	—	—	—	—
Oats (White), "	6 10½	7 2½	6 9	7 5½	6 10½	6 10½
" (Black), "	6 4½	5 7½	—	—	5 11½	6 6½
Barley, . "	—	—	—	—	—	—
Potatoes, . "	4 5	4 6	4 4½	3 8½	4 4½	4 6½
Hay (Clover), . "	3 7½	2 10½	3 5½	3 1½	3 4½	3 3½
" (Meadow), "	2 7½	1 9	2 10½	2 6½	2 0½	2 4½
Grass Seed—						
(Perennial Rye), . "	—	—	—	—	—	—
(Italian Rye), . "	—	—	—	—	—	—
Flax, . per 14 lbs.	—	—	—	—	—	—
LIVE STOCK :—						
Store Cattle :—	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
One year old, per head,	7 9 7	7 8 9	6 2 5	6 18 8	6 19 5	6 11 7
Two years old, "	10 12 8	9 12 10	9 0 11	9 17 1	9 14 2	9 7 3
Three years old, "	14 3 5	13 8 11	—	12 15 8	13 3 8	12 14 6
Springers, "	15 1 3	13 6 4	12 19 1	14 9 8	13 13 2	13 7 11
Store Sheep :—						
Lambs, . "	—	1 8 5	—	0 14 10	1 6 6	1 9 5
One year old and over, . "	2 1 6	2 0 0	1 4 4	1 19 7	1 19 9	2 5 7
Two years old and over, . "	—	2 0 1	1 2 6	1 15 1	1 15 0	1 17 11
Store Pigs (8 to 10 weeks old), "	1 1 3	1 0 10	1 2 4	1 0 8	1 1 6	1 3 3
Fat Cattle :—						
Bullocks, . "	—	—	—	—	19 0 0	18 10 5
Heifers, . "	—	—	—	—	16 12 0	15 19 8
Cows, . "	—	—	—	—	16 9 8	14 16 8
Fat Sheep :—						
Wethers, . "	—	—	—	—	2 19 9	2 15 2
Ewes, . "	—	—	—	—	2 9 1	2 10 7
Hoggets, . "	—	—	—	—	2 1 3	2 6 7
Lambs, . "	—	—	—	—	1 11 0	1 13 3
MEAT, PROVISIONS, &c. :—	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Beef (Live), . per 112 lbs.	—	—	—	—	34 10	33 11½
" (Dead), . "	—	—	—	—	61 0	59 5
Mutton (Live), . "	—	—	—	—	42 3	42 8
" (Dead), . "	—	—	—	—	73 11	74 8
Pork (Dead), . "	47 1½	46 8½	48 0½	46 1	46 9½	51 3½
Butter (Creamery), . "	103 8	103 8	—	—	103 9	93 1
" (Factory), . "	97 8	94 6	—	—	94 10	81 9
" (Farmers), . "	94 10	91 8	94 8	97 10	94 9	83 4
Eggs, . per 120	7 2½	6 8½	—	6 5½	6 10½	6 10½
Wool, . per lb.	0 6	0 6½	—	0 6½	0 6½	0 11½

WEEKLY AVERAGE PRICES of WHEAT, OATS, and BARLEY, per 112 lbs., computed from Market Returns of certain quantities of these Cereals supplied by Inland Revenue Officers, during the QUARTER ended 30th JUNE, 1908.

Returns received in the Week ended	WHEAT.		OATS.		BARLEY.	
	Average Price per 112 lbs.	Quantity.	Average Price per 112 lbs.	Quantity.	Average Price per 112 lbs.	Quantity.
1908.	s. d.	Cwts. of 112 lbs.	s. d.	Cwts. of 112 lbs.	s. d.	Cwts. of 112 lbs.
April 4, .	—	—	6 2½	5,313	—	—
" 11, .	—	—	6 4½	5,500	—	—
" 18, .	—	—	6 3½	4,661	—	—
" 25, .	—	—	6 4	4,576	—	—
May 2, .	—	—	6 5	4,772	—	—
" 9, .	—	—	6 4½	4,481	—	—
" 16, .	—	—	6 5½	3,452	—	—
" 23, .	—	—	6 7½	3,131	—	—
" 30, .	—	—	6 6½	4,251	—	—
June 6, .	—	—	6 7½	4,100	—	—
" 13, .	—	—	6 10½	3,606	—	—
" 20, .	—	—	6 8	3,105	—	—
" 27, .	—	—	6 8	4,242	—	—

AVERAGE PRICES of FAT CATTLE and FAT SHEEP, per 112 lbs., LIVE WEIGHT, sold in the DUBLIN MARKET during the QUARTER ended 30th JUNE, 1908 and also for the corresponding period during the eleven preceding years.

DESCRIPTION.	YEAR.											
	1908.	1907.	1906.	1905.	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Fat Cattle.	31 10	33 11½	32 5½	32 8½	34 3½	34 5½	37 4	33 4	34 11½	33 7½	30 6½	33 1½
Fat Sheep.	42 3	42 8	42 10	39 9½	40 6½	40 3½	37 0	38 0	40 1	36 3½	34 9	37 10½

NUMBER of ANIMALS included in Returns furnished under the MARKETS and FAIRS (Weighing of Cattle) ACT, 1891, Sections 3 and 4, during the Quarter ended 30th JUNE, 1908.

WEEK ENDED	FAT CATTLE.					FAT SHEEP.			
	Dublin.		Belfast.		Total Number of Cattle included in Returns.	Dublin.		Belfast.	
	Corporation Market Authorities.	Mr. Gavin Low, Auctioneer.	Corporation Market Authorities.	Mr. John Robson, Auctioneer.		Corporation Market Authorities.	Mr. Gavin Low, Auctioneer.	Corporation Market Authorities.	Total Number of Sheep included in Returns.
April 2, .	54	103	38	41	276	7	269	48	324
" 9, .	56	82	12	37	187	15	177	20	212
" 16, .	51	77	12	29	169	40	296	8	344
" 23, .	50	76	12	26	164	34	141	8	183
" 30, .	69	119	12	33	233	11	125	8	144
May 7, .	49	84	—	18	151	35	119	—	154
" 14, .	63	75	—	14	152	—	197	—	197
" 21, .	52	81	—	22	155	—	339	—	339
" 28, .	55	81	—	26	162	50	325	—	346
June 4, .	50	73	—	23	176	—	407	—	407
" 11, .	76	43	—	24	143	4	449	—	453
" 18, .	27	77	—	28	182	—	454	—	454
" 25, .	78	56	—	9	143	—	240	—	240
Totals, .	810	1,027	86	330	2,253	106	3,539	92	3,797

DISEASES OF ANIMALS IN IRELAND.

NUMBER of OUTBREAKS of SWINE-FEVER, and Number of SWINE returned as having been SLAUGHTERED in Ireland, under the Diseases of Animals Act of 1894, in the undermentioned period, by Order of the Department.

Quarter ended	SWINE-FEVER.	
	Outbreaks confirmed.	Swine Slaughtered as Diseased or as having been Exposed to Infection.
30th June, 1908,	69	1,165

NUMBER of OUTBREAKS reported as having taken place, and NUMBER of ANIMALS returned as having been attacked by ANTHRAX and GLANDERS in Ireland in the undermentioned period.

Quarter ended	ANTHRAX.		GLANDERS (including Farcy).		Epizootic Lymphangitis.	
	Outbreaks Reported.	Animals Attacked.	Outbreaks Reported.	Animals Attacked.	Outbreaks Reported.	Animals Attacked.
30th June, 1908,	1	1	—	—	—	—

NUMBER of Cases of RABIES in DOGS in IRELAND during the undermentioned period.

Quarter ended	Number of Cases.
30th June, 1908,	—

NUMBER of OUTBREAKS reported as having taken place, and NUMBER of ANIMALS returned as having been attacked by SHEEP-SCAB and PARASITIC-MANGE in Ireland in the undermentioned period.

Quarter ended	SHEEP-SCAB.		PARASITIC-MANGE.	
	Outbreaks Reported.	Sheep Attacked.	Outbreaks Reported.	Animals Attacked.
30th June, 1908,	42	973	10	14

Veterinary Branch,
Department of Agriculture and Technical Instruction for Ireland,
Dublin.

BUTTER PRICES DURING THE QUARTER

ABSTRACTED FROM "THE GROCER," "GROCER'S REVIEW,"

Excepting 1 lb. Rolls and Farmers' Butter all quotations are the Landed Prices of the less than the landed prices in Great Britain.

			WEEK ENDED			
COUNTRY OF ORIGIN.	Type of Package.	Place of Sale.	APRIL.			
			4th.	11th.	18th.	25th.
			Per cwt.	Per cwt.	Per cwt.	Per cwt.
			s. s.	s. s.	s. s.	s. s.
IRELAND—						
Creamery Butter.	Kiebs, kegs, or pyramid boxes.	London, ...	—	—	—	110 112
		Liverpool, ...	—	—	106-108	110-112
		Bristol, ...	—	113-115	110 115	112 115
		Cardiff, ...	113-116	112-114	111-113	112-114
		Manchester, ...	—	—	106 109	—
		Birmingham, ...	110-112/6	108-112/6	—	—
		Glasgow, ...	—	—	—	—
		Limerick, ...	—	—	—	—
		Cork, ...	—	—	—	—
		Belfast, ...	—	—	—	—
		Dublin, ...	110-114	108-112	106 110	106-110
		F. O. R., ...	116/8	114/4	114/4	112
Factories, ...	—	London, ...	—	—	—	100 106
		Liverpool, ...	—	—	—	—
		Bristol, ...	—	—	98-106	100-108
		Cardiff, ...	104-105	106 103	104-108	102 108
		Manchester, ...	—	—	—	—
Farmers' Butter.	Firkins, 1st. Ex-	Cork, ...	99-108	96-98	96-101	93 97
	port Price.	Cork, ...	94-107	94-97	95 98	94-94
	Do. 2nd "	Cork, ...	91-100	91-95	91 96	90-93
	Do. 3rd "	Cork, ...	92-104	90-100	92-102	92-101
Fresh, ...	Cork, ...	—	—	—	—	
FRANCE, ...	12x2 lb. rolls, ...	London, ...	Per doz. lbs. 12-14/6	Per doz. lbs. 12-14/6	Per doz. lbs. 12-14/6	Per doz. lbs. 11 6-14
	Paris buckets, ...	do., ...	Per cwt. 115-117	Per cwt. 115-117	Per cwt. 115-117	Per cwt. 108-112
DENMARK AND SWEDEN,	Kiebs, ...	Copenhagen Quotation,	91 Kr. 105 per 50 cwt. Kilos.	92 Kr. 102/9 per 50 cwt. Kilos.	92 Kr. 102/9 per 50 cwt. Kilos.	92 Kr. 102/0 per 50 cwt. Kilos.
		Average overprice,	—	—	—	—
		London, ...	110-113	108 111	110-112	110 122
		Liverpool, ...	111/6-115	110-115	112-114	113 116
		Bristol, ...	—	—	—	—
		Cardiff, ...	116	114	111-112	112-114
		Manchester, ...	109-113	108-111	109-112	111-114
		Birmingham, ...	110-116/6	110-114/6	108-112	111-112
		Newcastle-on-Tyne, ...	103-112	107-110	107-109	109 112
		Glasgow, ...	112-114	110-112	108-110	110-112
		Leith, ...	108-111	108-110	107-108	109-110
		Hull, ...	112-118	112 116	112 114	113-116
		F. O. R. London,	114/4	112	112	112
FINLAND, ...	Kiebs, ...	Manchester, ...	108-110	10-105	106-108	108-110
		Liverpool, ...	—	—	—	—
		Hull, ...	110-114	105-112	106-110	107-112
		Cardiff, ...	—	—	—	—

ENDED 30TH JUNE, 1908.

"GROCER'S GAZETTE," AND OTHER TRADE REPORTS.

Choicest Qualities. The Nett F.O.R. Price to an Irish Creamery would be 5s. to 7s. per cwt. This figure covers freight, commission, handling, &c.

WEEK ENDED

MAY.					JUNE.			
2nd.	9th.	16th.	23rd.	30th.	6th.	13th.	20th.	27th.
Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.
s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
110-114	112-114	108-112	106-110	106-108	106-108	106-111	110-115	112-116
110-112	110-114	108-112	106-108	104-108	103-108	104/6-108	107-111	112-114
113-116	114-116	112-115	110-112	108-112	108-112	108-112	112-116	113-116
113-115	115-116	113-115	108-110	108-110	108-110	108-112	112-114	114-116
109-111	112-115	108-111	106-108	104-108	105-107	105-108	109-111	111-114
—	—	108-113	106-111	106-108	104/6-108	105-109	108-112	111-114
—	—	—	106-108	104-106	104-106	104-106	109-110	111-112
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
110-114	112-116	110-112	105-107/4	104-107/4	102/8-107/4	102/8-107/4	108-112	110-112
112	112	112	112	112	112	112	114/4	116/8
102-106	102-110	99-106	99-106	95-102	95-102	96-104	100-108	100-108
104-108	104-108	102-106	100-104	100-104	98-102	96-100	100-105	102-107
100-108	103-108	100-106	98-106	97-106	98-106	102-106	104-106	104-108
106-112	110-112	106-108	98-106	102-106	102-104	98-105	102-108	104-108
—	—	—	—	—	—	—	—	—
95-98	97-99	92-99	89-90	88-89	89-90	90-92	92-96	96-99
93-97	94-98	91-95	86-89	87-88	88-89	89-90	90-95	95-93
92-96	93-97	90-94	85-88	86-87	87-88	88	88	95-96
93-106	96-106	88-101	86-95	86-96	89-97	90-98	93-102	97-103
Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.	Per doz. lbs.
11/6-14	11/13/6	11/13/6	10/6-13	10/6-13	10/6-13	10/6-13	11/13-5	11-13/6
Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.
108-112	107	103-107	103	103	103	103	108	108
96	96	92	93	93	93	96	97	97
Kr. 107/3	Kr. 107/3	Kr. 102/9	Kr. 103/10	Kr. 103/10	Kr. 104	Kr. 106/4	Kr. 108/7	Kr. 108/7
per — per	per — per	per — per	per — per	per — per	per — per	per — per	per — per	per — per
50 cwt.	50 cwt.	50 cwt.	50 cwt.	50 cwt.	50 cwt.	50 cwt.	50 cwt.	50 cwt.
Kilos.	Kilos.	Kilos.	Kilos.	Kilos.	Kilos.	Kilos.	Kilos.	Kilos.
—	—	—	—	—	—	—	—	—
114-116	114-116	108-111	110-112	110-112	109-112	111-114	115-117	115-117
113-116/8	115-120	111-116	110-113	111/6-115	110/6-116	111/6-115	114-117	116-119
—	—	—	—	—	—	—	—	—
113-116	116-118	112-114	110-112	112-114	112-113	112-114	114-116	116-119
112-116	115-120	112-115	108-113	112-114	111-113	111-113	114-116	115-118
111-114/8	114-119	112-116/6	108-114	109-113/8	110-114	110-113/6	113-116	115-118
111-114	115-117	111-114	109-111	111-113	110-112	110-112	113-115	116-117
112-114	114-116	112-114	109-111	110-112	110-112	110-112	113-115	114-117
110-111	116-117	114-115	108-110	109-111	109-111	109-111	113-114	115-116
113-116	114-120	114-118	112-114	112-116	112-116	113-116	115-119	117-119
116/8	116/8	112/-	113/2	113/2	113/2	115/6	117/10	117/10
109-111	113-116	109-111	107-109	108-110	107-110	107-110	110-112	112-114
—	—	—	—	—	—	—	—	—
105-109	109-116	110-112	110-112	106-112	106-112	107-112	110-115	112-115
112-114	115	108-110	107	102	110	110	112	114

[Continued on pages 794-796,

BUTTER PRICES DURING THE QUARTER

ABSTRACTED FROM "THE GROCER," "GROCER'S REVIEW,"

Excepting 1-lb. Rolls and Farmers' Butter all quotations are the Landed Prices of the less than the landed prices in Great Britain.

COUNTRY OF ORIGIN.	Type of Package.	Place of Sale.	WEEK ENDED			
			APRIL			
			4th.	11th.	18th.	25th.
RUSSIA & SIBERIA.	Kieis, ..	London, ..	Per cwt. 106-108	Per cwt. 106-108	Per cwt. 106-108	Per cwt. 106-108
		Liverpool, ..	110-112	110-112	110-112	110-112
		Bristol, ...	108-110	108	108-110	108-110
		Cardiff, ...	104-108	104-110	104-108	104-108
		Manchester, ...	106-110	106-110	106-108	106-107
		Birmingham, ...	108-110	106-107	104-106	106-108
		Glasgow, ...	—	—	—	—
		Leith, ...	—	—	—	—
HOLLAND, ...	Boxes, ...	London, ...	104-108	104-106	104-108	—
		do. ...	Per doz. lbs. 12-12/6	Per doz. lbs. 12-12/6	Per doz. lbs. 12-12/6	Per doz. lbs. 12-12/6
		do. ...	Per cwt. 114-116	Per cwt. 112-114	Per cwt. 112-114	Per cwt. 114-116
		Glasgow, (Fresh, Salt, ...)	110-112	107-108	107-108	109-110
		Manchester, ...	—	—	—	—
		Hull, ...	110-114	107-112	107-112	103-112
		—	—	—	—	—
		—	—	—	—	—
ITALY, ...	Rolls, ..	London, ...	Per doz. lbs. 14-15	Per doz. lbs. 13/6-14/6	Per doz. lbs. 13-14	Per doz. lbs. 12/6-13/6
		—	—	—	—	—
CANADA ...	56 lb. boxes, ..	London, ...	Per cwt. —	Per cwt. —	Per cwt. —	Per cwt. —
		Liverpool, ...	—	—	—	—
		Bristol, ...	—	—	—	—
		Cardiff, ...	—	—	—	—
		Birmingham, ...	—	—	—	—
		Manchester, ...	—	—	—	—
		Glasgow, ...	—	—	—	—
		—	—	—	—	—
AUSTRALIA & NEW ZEALAND.*	Boxes, ...	London, ...	A. { s. 104-108 u. 104-110 Z. 110-112	A. { s. 104-108 u. 101-110 Z. 110-112	A. { s. 104-108 u. 110 Z. 110-112	A. { s. 106-110 u. 106-110 Z. 110-114
		Liverpool, ...	A. 106-112	A. 110-113	A. 103-111	A. 109/6-112
		Bristol, ...	Z. 111/6-115	Z. 111/6-115	Z. 112-114	Z. 112/6-115
		Cardiff, ...	A. 102-112	A. 102-112	A. 104-112	A. 108-114
		Manchester, ...	Z. 112-118	Z. 113-116	Z. 114-116	Z. 114-116
		Birmingham, ...	A. 108-112	A. 112-113	A. 108-110	A. 110-112
		Glasgow, ...	Z. 114-115	Z. 114-116	Z. 114-115	Z. 116-116
		Leith, ...	A. 106-108	A. —	A. 106-108	A. —
		Hull, ...	Z. —	Z. —	Z. —	Z. —
		—	A. 106-108	A. 107/6-111	A. 106-108	A. 105/6-111
		—	Z. 110-116	Z. —	Z. —	Z. —
		—	A. 108-112	A. 106-111	A. 106-110	A. 107-111
		—	Z. 112-114	Z. 110-112	Z. 110-112	Z. 110-112
		—	A. —	A. —	A. —	A. —
		—	Z. —	Z. —	Z. —	Z. —
ARGENTINA, ...	Boxes, ...	London, ...	106-110	106-108	106-108	106-110
		Liverpool, ...	107-113	108-110	108-110	108-110
		Bristol, ...	—	113	113	—
		Cardiff, ...	112-114	110	112	—
		Manchester, ...	108-109	—	108	—
		Birmingham, ...	—	—	—	—
		Glasgow, ...	—	—	—	—
		—	—	—	—	—
UNITED STATES, ..	Tubs and boxes, ..	London, ...	98-100	100-102	—	92-94
		Liverpool, ...	—	—	—	—
		Bristol, ...	100-104	100-102	98-102	100-102
		Cardiff, ...	100	—	98	—
		Manchester, ...	—	—	—	—

* A.—Australia. Z.—New Zealand. s.—Salted. u.—Unsalted.

ENDED 30TH JUNE, 1908—continued.

"GROCER'S GAZETTE," AND OTHER TRADE REPORTS.

Choiceest Qualities. The Nett F.O.R. Price to an Irish Creamery would be 5s. to 7s. per cwt. This figure covers freight, commission, handling, &c.

[illegible]

TABLES SHOWING THE EXPORTS

TABLE

RETURN of the NUMBER of ANIMALS EXPORTED from IRELAND to GREAT
PORTS of EMBARKATION

IRISH PORTS.	CATTLE.							SHEEP.			
	Fat.	Stores (fattening).	Milch Cows.	Springers.	Other Cattle.	Calves.	Total.	Fat.	Stores.	Lambs.	Total.
Ballina, . . .	14	133			17		164	63		308	371
Belfast, . . .	4,017	24,083	1,744	2,449	4	2,017	34,314	322		1,331	2,153
Coleraine, . . .		519	1	11	3		534				
Cork, . . .	894	15,939	359	510	93	2,331	20,116	842	4,962	10,933	16,737
Drogheda, . . .	1,013	220	142	15			1,390	3,968		13,965	17,873
Dublin, . . .	12,638	24,701	5,144	1,048	72	2,651	46,254	21,340		59,499	80,839
Dundalk, . . .	516	2,899	232	114			3,761	904		5,607	6,511
Dundrum, . . .		390	3				393				
Greenore, . . .	872	4,190	368	1,200		2	6,622	2,255		2,873	5,128
Larne, . . .	196	6,441	1	10		2,432	9,080	79	70	46	195
Limerick, . . .	98	19				179	296				
Londonderry, . . .	3,997	13,827	156	723	104	5,632	24,439	404	2,980	2,186	4,970
Milford, . . .	1	118	2				121				
Mulroy, . . .		123				5	128				
Newry, . . .	71	1,444	20	15			1,550	250		1,460	1,710
Portrush, . . .		81					81				
Rosslare, . . .											
Sligo, . . .	20	457	4	6	38		525	264		732	996
Waterford, . . .	4,344	10,613	37	46	66	16	15,122	4,765	1,764	7,685	13,624
Westport, . . .	6			1	15		22	2,964		1,034	3,998
Wexford, . . .	690	936	3	3		1	1,633	3,144		1,089	4,233
Total, . . .	29,377	107,133	8,206	6,151	412	15,266	166,545	41,564	9,176	108,598	169,338

TABLE

RETURN of the NUMBER of ANIMALS EXPORTED from IRELAND to GREAT
PORTS of DEBARKATION

BRITISH PORTS.	CATTLE.							SHEEP.			
	Fat.	Stores (fattening).	Milch Cows.	Springers.	Other Cattle.	Calves.	Total.	Fat.	Stores.	Lambs.	Total.
Ardrossan, . . .	621	3,421	987	777		70	5,876			137	137
Ayr, . . .	755	10,414	290	538	3	2,245	14,194	131	70	360	561
Barrow, . . .	292	3,180	83	184		15	3,734			68	68
Bristol, . . .	668	6,246	88	127		179	7,308	207	6,049	586	6,842
Cardiff, . . .											
Fishguard, . . .	3,476	11,636	264	347	1	1,708	17,432	2,677	673	7,155	10,405
Fleetwood, . . .	3,253	3,756	277	603			7,889	130	1,642	1,432	3,297
Glasgow, . . .	2,262	16,948	468	640	256	8,447	29,021	403	58	1,893	2,354
Greenock, . . .	19	3,070		11		20	3,129			67	77
Heysham, . . .	391	12,417	489	495		4	13,796	220	239	1,837	2,316
Holyhead, . . .	3,198	13,907	861	1,388	9	69	19,383	6,122		16,072	22,194
Liverpool, . . .	9,520	16,255	4,401	1,085	115	1,033	32,409	27,214	431	70,668	98,313
London, . . .		1				1	3				
Manchester, . . .	3,669	123	42	3	18		3,855	4,429		8,235	12,664
Newhaven, . . .											
Plymouth, . . .	145	31				46	222	31	47	32	110
Preston, . . .											
Silloth, . . .	906	878	1		10		1,797				
Southampton, . . .	7	83	1	1			92				
Stranraer, . . .	193	4,389	1	1		1,429	6,013				
Whitehaven, . . .		390	3				393				
Total, . . .	29,377	107,133	8,206	6,151	412	15,266	166,545	41,564	9,176	108,598	169,338

AND IMPORTS OF ANIMALS.

I.

BRITAIN during the Three Months ended 30th JUNE, 1908, showing the in Ireland.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	IRISH PORTS.
Fat.	Stores.	Total.		Stallions.	Mares.	Geldings.	Total.				
427		427				2	2			964	Ballina.
809	2,759	3,568	157	3	860	1,861	2,724	3	31	42,950	Belfast.
7		7			1	6	7		1	549	Coleraine.
4,094	85	4,189	2	2	112	265	379		208	41,631	Cork.
844	366	1,210	5		22	22	44			20,522	Drogheda.
30,371	137	30,508	47	30	1,097	1,010	2,137	2	67	159,854	Dublin.
2,014	2,004	4,018	1,329		180	162	342		144	16,105	Dundalk.
			10							403	Dundrum.
191	439	630	386		1,321	813	2,131		116	15,016	Greenore.
30	2,253	2,283			62	122	184	1		11,743	Larne.
					3	6	9			305	Limerick.
623	167	790	2	1	80	151	232		6	30,439	Londonderry.
105		105	1			1	1		1	229	Millford.
206		206			1		1			335	Mulroy.
223	1	224			14	15	29		17	3,330	Newry.
51		51			2		2			134	Portrush.
					1		1			1	Rosslare.
5,429		5,429			1	4	5			6,555	Shigo.
10,356		10,356		3	292	365	660	2	317	40,081	Waterford.
889		889			1		1			4,910	Westport.
2,154		2,154	2		4	5	9			8,031	Wexford.
58,823	8,221	67,044	1,941	39	4,054	4,810	8,903	8	908	404,687	Total.

II.

BRITAIN during the Three Months ended 30th JUNE, 1908, showing the in Great Britain.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	BRITISH PORTS.
Fat.	Stores.	Total.		Stallions.	Mares.	Geldings.	Total.				
88	2,896	2,984	93		126	354	480		2	9,572	Ardrossan.
162	2,042	2,204	1		31	69	100		4	17,064	Ayr.
468	62	530			104	175	279	1		4,612	Barrow.
4,127		4,127	3	1	84	133	218	1	293	18,792	Bristol.
											Cardiff.
6,936		6,936	1	4	288	416	708	1	98	35,581	Fishguard.
22	467	479	4	1	306	513	820		6	12,495	Fleetwood.
8,198	83	8,281	4	4	203	467	664	1	10	40,335	Glasgow.
4	85	89	47	2	2	7	11		2	3,355	Greenock.
5,071		5,071	7		232	489	721		4	21,915	Heysham.
13,475	621	13,996	393	24	2,062	1,462	3,548	1	140	59,654	Holyhead.
1,9015	1,094	20,109	1,374	3	438	498	939	2	340	153,486	Liverpool.
					8	9	17			20	London.
1,211		1,211	2		75	71	146			17,878	Manchester.
					8	3	11			11	Newhaven.
					6	5	11		1	314	Plymouth.
			2		1		1		7	10	Preston.
					12	7	19			1,816	Silloth.
46		46			7	20	27		1	166	Southampton.
	981	981			61	122	183	1		7,178	Stranraer.
			10							403	Whitehaven.
58,823	8,221	67,044	1,941	39	4,054	4,810	8,903	8	908	404,687	Total.

TABLE

RETURN of the NUMBER of ANIMALS IMPORTED into IRELAND from GREAT BRITAIN
of DEBARKATION

IRISH PORTS.	CATTLE.							SHEEP.			
	Fat.	Stores (fattening).	Milch Cows.	Springers.	Other Cattle.	Calves.	Total.	Fat.	Stores.	Lambs.	Total.
Ballina,	12	1,034	.	3	1,037
Belfast,	8	3	1	.	.	.	.	.	.	.
Coleraine,	4	.	.	.	.	4	.	.	.	.
Cork,
Drogheda,
Dublin,	45	3	1	.	1	50	370	106	1	477
Dundalk,	25	.	.	25
Dundrum,
Greenore,
Larne,	15	.	.	.	.	15	19	.	.	19
Limerick,
Londonderry,	40	.	.	.	.	40	.	.	.	.
Newry,
Portrush,
Rosslare,
Silgo,	1	.	.	1	.	.	2	.	.	.	.
Waterford,	1	.	.	.	.	1	.	441	.	441
Westport,
Wexford,
Total,	1	113	6	3	.	1	124	1,448	547	4	1,999

TABLE

RETURN of the NUMBER of ANIMALS IMPORTED into IRELAND from GREAT BRITAIN
EMBARKATION in

BRITISH PORTS.	CATTLE.							SHEEP.			
	Fat.	Stores (fattening).	Milch Cows.	Springery.	Other Cattle.	Calves.	Total.	Fat.	Stores.	Lambs.	Total.
Ardrossan,	1	1	.	.	.	2	487	.	.	487
Ayr,	3	.	1	.	.	4	588	.	3	591
Barrow,	3	.	.	3
Bristol,	4	.	.	.	.	4	1	.	.	1
Cardiff,
Fishguard,	1	.	.	.	.	1	.	.	.	.
Fleetwood,	1	.	.	.	.	1	.	.	.	.
Glasgow,	1	40	.	2	.	.	43	291	462	.	753
Greenock,	7	.	.	.	.	7	.	.	.	.
Heysbam,	2	.	.	.	2	.	.	.	.
Holyhead,	23	.	.	.	.	23	77	23	.	102
Liverpool,	1	.	.	.	.	1	.	.	1	1
London,	1	.	.	.	.	1	.	.	.	.
Manchester,
Plymouth,
Portsmouth,
Silloth,	6	.	.	.	.	6	1	60	.	61
Southampton,	10	3	.	.	1	14	.	.	.	.
Stranraer,	15	.	.	.	.	15	.	.	.	.
Whitehaven,
Total,	1	113	6	3	.	1	124	1,448	547	4	1,999

III.

during the Three Months ended 30th JUNE, 1908, showing the PORTS in Ireland.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	IRISH PORTS.
Fat.	Stores.	Total.		Stallions.	Mares.	Geldings.	Total.				
.	.	.	.	11	58	81	150	.	.	1,199	Ballina.
.	.	.	.	3	140	117	260	.	.	261	Belfast.
.	.	.	.	43	357	217	617	.	1	1,146	Coleraine.
.	1	1	.	.	.	1	1	.	.	26	Cork.
.	48	22	70	.	1	72	Drogheda.
.	.	.	1	.	7	4	17	.	.	51	Dublin.
.	.	.	.	6	.	.	.	.	.	61	Dundalk.
.	.	.	.	1	6	4	11	.	.	51	Dundrum.
.	2	.	2	1	.	3	Greenore.
.	1	.	1	.	.	1	Larne.
.	2	2	.	.	61	Limerick.
.	1	1	.	.	3	Londonderry.
.	2	2	.	1	1	Newry.
.	2	2	.	.	2	Portrush.
.	.	.	.	1	.	2	3	.	.	5	Rosslare.
.	.	.	.	5	26	44	75	.	.	517	Sligo.
.	3	3	6	.	.	6	Waterford.
.	6	Westport.
.	6	Wexford.
.	1	1	1	70	648	497	1,215	1	2	3,343	Total.

IV.

during the Three Months ended 30th JUNE, 1908, showing the PORTS of Great Britain.

SWINE.			Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	BRITISH PORTS.
Fat.	Stores.	Total.		Stallions.	Mares.	Geldings.	Total.				
.	.	.	.	1	2	5	8	.	.	497	Ardrossan.
.	6	13	19	.	.	614	Ayr.
.	3	Barrow.
.	.	.	.	2	109	98	209	.	1	215	Bristol.
.	Cardiff.
.	.	.	.	2	40	57	99	.	.	100	Fishguard.
.	.	.	.	6	35	33	74	.	.	75	Fleetwood.
.	.	.	.	2	15	28	45	.	.	841	Glasgow.
.	.	.	.	3	5	6	14	.	.	21	Greenock.
.	1	1	.	1	10	5	16	.	.	19	Hleysham.
.	.	.	1	38	375	203	616	.	1	743	Holyhead.
.	.	.	.	7	25	37	69	1	.	72	Liverpool.
.	1	1	2	.	.	3	London.
.	2	.	2	.	.	2	Manchester.
.	.	.	.	2	13	3	18	.	.	18	Plymouth.
.	2	2	.	.	2	Portsmouth.
.	3	1	4	.	.	71	Silloth.
.	1	1	.	.	15	Southampton.
.	.	.	.	6	7	4	17	.	.	32	Stranraer.
.	Whitehaven.
.	1	1	1	70	648	497	1,215	1	2	3,343	Total.

RETURN of the NUMBER of ANIMALS EXPORTED from IRELAND to the
showing the PORTS of

IRISH PORTS.	CATTLE.					SHEEP.		
	Fat.	Stores.	Other Cattle.	Calves	Total.	Sheep.	Lambs.	Total.
BELFAST,	167	.	2	169	.	.	.
DUBLIN,	90	.	.	90	22	110	132
TOTAL,	257	.	2	259	22	110	132

RETURN of NUMBER of ANIMALS EXPORTED from IRELAND to the
showing the PORTS of DEBARKATION

ISLE OF MAN PORT.	CATTLE.					SHEEP.		
	Fat.	Stores.	Other Cattle.	Calves	Total.	Sheep.	Lambs.	Total.
DOUGLAS,	257	.	2	259	22	110	132

RETURN of the NUMBER of ANIMALS IMPORTED into IRELAND from the
showing the PORTS of

IRISH PORTS.	CATTLE.					SHEEP.		
	Fat.	Stores.	Other Cattle.	Calves	Total.	Sheep.	Lambs.	Total.
BELFAST,
DUBLIN,
TOTAL,

RETURN of the NUMBER of ANIMALS IMPORTED into IRELAND from the
showing the PORTS of EMBARKATION

ISLE OF MAN PORT.	CATTLE.					SHEEP.		
	Fat.	Stores.	Other Cattle.	Calves	Total.	Sheep.	Lambs.	Total.
DOUGLAS,

ISLE OF MAN during the Three Months ended 30th JUNE, 1908,
EMBARKATION in IRELAND.

SWINE.				HORSES.					Mules or Jennets	Asses.	Total Animals.	IRISH PORTS.
Fat.	Stores.	Total.		Goats.	Stal- lions.	Mares.	Geid- ings.						Total.
.	27	62	89	.	.	258	BELFAST.	
.	17	8	25	.	.	247	DUBLIN.	
.	44	70	114	.	.	505	TOTAL.	

ISLE OF MAN during the Three Months ended 30th JUNE, 1908,
in the ISLE OF MAN.

SWINE.			HORSES.							ISLE OF MAN PORT.	
Fat.	Stores.	Total.	Goats.	Stallions.	Mares.	Geldings.	Total.	Mules or Jennets.	Asses.	Total Animals.	
.	44	70	114	.	.	505	DOUGLAS.

ISLE OF MAN during the Three Months ended 30th JUNE, 1908,
DEBARKATION in IRELAND.

[illegible]

ISLE OF MAN during the Three Months ended 30th JUNE, 1908,
in the ISLE OF MAN.

[illegible]

COASTING AND

RETURN of the NUMBER of ANIMALS SHIPPED to and from Places in Ireland
of Embarkation

IRISH PORTS.	CATTLE.					SHEEP.			SWINE.		
	Fat.	Stores.	Other Cattle.	Calves.	Total.	Sheep.	Lambs.	Total.	Fat.	Stores.	Total.
Cork to Aghada Pier, .	.	1	.	5	6	.	48	48	.	6	6
" to Belfast, .	.	.	.	.	.	.	.	.	.	.	.
" to Spike Island, .	.	.	.	.	.	.	.	.	.	.	.
" to Queenstown, .	.	.	.	.	.	.	.	.	.	2	2
" to Waterford, .	.	25	.	10	35	.	.	.	.	.	.
Total, .	.	26	.	15	41	.	48	48	.	8	8
Aghada Pier to Cork, .	.	1	.	.	1	87	207	294	410	.	410
Dublin " .	.	.	.	.	.	.	.	.	.	.	.
Spike Island " .	.	.	.	.	.	.	.	.	.	.	.
Queenstown " .	.	.	.	.	.	.	.	.	45	.	45
Waterford " .	.	1	.	.	1	.	.	.	.	.	.
Total, .	.	2	.	.	2	87	207	294	455	.	455
Waterford to Ballyhack, .	.	.	.	9	9	.	.	.	.	.	.
" to Belfast, .	.	.	.	.	.	.	.	.	.	.	.
" to Duncannon, .	.	67	.	134	201	6	2	8	.	16	16
Total, .	.	67	.	143	210	6	2	8	.	16	16
Ballyhack to Waterford, .	128	66	.	.	194	136	237	373	214	.	214
Belfast to Waterford, .	.	.	.	.	.	.	.	.	.	1	1
Duncannon to Waterford, .	41	52	.	1	94	71	11	82	349	.	349
Kilrush to Limerick, .	.	136	.	.	136	.	.	.	830	.	830
Kildysart " .	.	.	.	.	.	.	.	.	.	.	.
Glin " .	.	.	.	.	.	.	.	.	.	.	.
Portumna " .	.	.	.	.	.	.	.	.	840	.	840
Tarbert " .	.	.	.	.	.	.	.	.	.	.	.
Banagher " .	.	.	.	.	.	.	.	.	180	.	180
Total, .	.	136	.	.	136	.	.	.	1,850	.	1,850
Greencastle to Greenore, .	.	172	.	.	172	49	28	77	.	.	.
Greenore to Greencastle, .	.	.	.	.	.	.	.	.	.	.	.
Londonderry to Moville, .	8	3	.	.	11	19	18	37	.	.	.
Moville to Londonderry, .	14	217	.	.	231	12	11	23	4	.	4
Ballina to Sligo, .	9	1	.	.	10	.	.	.	.	.	.
Belmullet " .	.	.	.	.	.	.	.	.	49	.	49
Total, .	9	1	.	.	10	.	.	.	49	.	49
Millford to Mulroy, .	1	5	.	.	6	.	.	.	1	.	1
Leithbeg to Mulroy, .	.	.	.	1	1	.	.	.	.	.	.
Mulroy to Leithbeg, .	.	.	.	7	7	.	.	.	.	.	.
Mulroy to Portrush, .	.	.	.	.	.	.	.	.	.	.	.
Millford to Portrush, .	.	.	.	.	.	.	.	.	.	16	16
Total, .	201	747	.	167	1,115	380	562	942	2,922	41	2,963

INLAND NAVIGATION.

during the Three Months ended 30th June, 1908, showing the Places and Debarkation.

Goats.	HORSES.				Mules or Jennets.	Asses.	Total Animals.	IRISH PORTS.
	Stallions.	Mares.	Geldings.	Total.				
.	60	Cork to Aghada Pier,
.	" to Belfast.
.	" to Spike Island.
.	2	" to Queenstown.
.	35	" to Waterford.
.	97	Total.
.	705	Aghada Pier to Cork.
.	.	.	1	1	.	.	1	Dublin "
.	Spike Island "
.	45	Queenstown "
.	Waterford "
.	.	.	1	1	.	.	752	Total.
.	9	Waterford to Ballyhack.
.	" to Belfast.
.	.	2	1	3	.	5	233	" to Duncannon.
.	.	2	1	3	.	5	242	Total.
.	.	1	.	1	.	.	782	Ballyhack to Waterford.
.	.	1	.	1	.	.	2	Belfast to Waterford.
.	525	Duncannon to Waterford.
.	.	1	.	1	.	.	937	Kilrush to Limerick.
.	Kildysart "
.	Glin "
.	840	Portumna "
.	Tarbert "
.	180	Banagher "
.	.	1	.	1	.	.	1,987	Total.
.	249	Greencastle to Greenore.
.	Greenore to Greencastle.
.	.	1	.	1	.	.	49	Londonderry to Moville.
.	268	Moville to Londonderry.
.	10	Ballina to Sligo.
.	49	Belmullet "
.	59	Total.
.	7	Milford to Mulroy.
.	1	Leithbeg to Mulroy.
.	7	Mulroy to Leithbeg.
.	.	.	1	1	.	.	1	Mulroy to Portrush.
.	16	Milford to Portrush.
.	.	6	3	9	.	5	5,034	Total.

RETURN of the NUMBER of HORSES EXPORTED from IRELAND through GREAT BRITAIN to the COLONIES and FOREIGN COUNTRIES during the THREE MONTHS ended 30th JUNE, 1908, showing the Ports of Embarkation in Ireland.

PORTS.	Number of Horses.			
	Stallions.	Mares.	Geldings.	Total.
Belfast,	1	76	31	108
Cork,	—	—	—	—
Dublin,	—	47	36	83
Dundalk,	—	86	53	139
Greenore,	—	603	252	855
Waterford,	—	26	24	50
Total,	1	838	396	1,235

RETURN of the NUMBER of HORSES IMPORTED into IRELAND through GREAT BRITAIN from the COLONIES and FOREIGN COUNTRIES during the THREE MONTHS ended 30th JUNE, 1908, showing the Ports of Debarkation in Ireland.

PORTS.	Number of Horses.			
	Stallions.	Mares.	Geldings.	Total.
Belfast,	—	17	14	31
Cork,	—	—	1	1
Waterford,	—	—	—	—
Total,	—	17	15	32

RETURN of the NUMBER of HORSES IMPORTED into IRELAND direct from FOREIGN COUNTRIES during the THREE MONTHS ended 30th JUNE, 1908, showing the Ports of Debarkation in Ireland.

PORTS.	Number of Horses.			
	Stallions.	Mares.	Geldings.	Total.
Dublin,	—	—	2	2
Portrush,	—	—	—	—
Total,	—	—	2	2

EMIGRATION FROM IRELAND.

TABLE showing, by Destinations, the Numbers of Emigrants (Natives of Ireland) who left the Ports of Ireland during the months of April, May, and June, 1908, and the total for the Six Months ended the 30th June, 1908; together with the total Number of Emigrants in each of the corresponding periods of the year 1907.

DESTINATION.	April, 1908.	May, 1908.	June, 1908.	Six Months ended 30th June, 1908.
FOREIGN COUNTRIES:—				
America (U.S.),	3,379	3,136	1,103	9,974
Canada,	451	479	253	1,598
South Africa,	14	14	9	76
Australia,	42	37	38	224
New Zealand,	5	11	9	52
Other Countries,	8	12	8	61
Total,	3,899	3,989	1,420	11,985
GREAT BRITAIN:—				
England and Wales,	160	161	133	916
Scotland,	104	78	111	610
Total,	264	239	244	1,526
General Total for 1908,	4,163	4,228	1,664	13,511
General Total for 1907,	7,814	6,712	3,139	22,224

The figures are subject to revision in the Annual Report.

The figures in the above Table have been extracted from Returns published by the Registrar-General for Ireland.

ACCOUNT showing the QUANTITIES of certain kinds of AGRICULTURAL
into Ireland in each WEEK from

ARTICLES.	WEEK ENDED				
	4th April.	11th April.	18th April.	25th April.	2nd May.
ANIMALS, LIVING—					
Horses, No.	.	.	.	.	.
FRESH MEAT—					
Beef (including refrigerated and frozen), cwt.	.	.	.	.	.
Mutton, " " " " " "	.	.	.	.	.
SALTED OR PRESERVED MEAT—					
Bacon, cwt.	.	.	.	.	.
Beef, . . . . . "	.	.	.	.	.
Hams, . . . . . "	.	.	.	.	.
Pork, . . . . . "	.	.	.	.	.
Meat, unenumerated, Salted or Fresh, cwt.	.	.	.	.	.
Meat preserved otherwise than by salting (including tinned and canned), cwt.	.	91	.	.	.
DAIRY PRODUCE AND SUBSTITUTES—					
Butter, cwt.	.	.	.	.	.
Margarine, "	153	105	146	37	64
Cheese, "	3	.	.	3	4
Milk, Condensed, "	73	64	57	52	16
" Cream, . . . . . "	.	.	.	.	.
" Preserved, other kinds " "	.	.	.	.	.
EGGS, gt. hunds.	.	.	.	.	.
LARD, cwt.	44	.	326	.	303
CORN, GRAIN, MEAL, AND FLOUR—					
Wheat, cwt.	72,300	58,500	.	94,100	.
Wheat Meal and Flour, "	25,400	10,200	27,700	13,600	2,500
Barley, "	.	.	.	1,700	.
Oats, "	5,300	11,900	.	13,500	500
Peas, "	220	.	20	20	60
Beans, . . . . . "	.	.	.	.	.
Maize or Indian Corn, "	177,900	41,600	151,400	141,600	380,300
FRUIT, RAW—					
Apples, cwt.	.	32	37	.	.
Currants, . . . . . "	.	.	.	.	.
Gooseberries, . . . . . "	.	.	.	.	.
Pears, . . . . . "	.	.	.	.	.
Plums, . . . . . "	.	.	.	.	.
Grapes, . . . . . "	.	.	.	.	.
Lemons, . . . . . "	.	.	.	.	.
Oranges, . . . . . "	.	.	.	.	.
Strawberries, . . . . . "	.	.	.	.	.
Unenumerated, . . . . . "	.	.	.	.	.
HAY, tons	.	.	.	.	.
STRAW, . . . . . "	.	.	.	.	.
MOSS LITTER, "	57	61	.	62	52
HOPS, cwt.	.	.	.	.	.
VEGETABLES, RAW—					
Onions, bushels	910	.	160	.	200
Potatoes, cwt.	.	.	.	.	.
Tomatoes, . . . . . "	.	.	.	.	.
Unenumerated, . . . . . £	.	.	.	.	.
VEGETABLES, DRIED, cwt.	.	.	.	.	.
Preserved by Canning, . . . . . "	.	.	.	.	.
POULTRY AND GAME, . . . . . £	.	.	.	.	.

* This Table is confined to the Imports of certain kinds of Agricultural Produce into to a request from this Department kindly consented to separate the Irish Imports (direct) form of Weekly Returns.

**PRODUCE Imported direct (i.e. from the Colonies or Foreign Countries)
4th April, 1908, to 27th June, 1908.***

WEEK ENDED							
9th May.	16th May.	23rd May.	30th May.	6th June.	13th June.	20th June.	27th June.
.
.	.	2,056	3,350	.	.	.	.
.	.	2,536	1,900	.	.	.	.
.
.	.	.	4	.	.	.	.
.	.	.	80	.	240	.	.
.	.	36	66	.	.	.	.
.	.	.	7	.	.	4	147
43	120	69	56	51	67	59	102
133	81	57	30	46	78	1	5
.	59	10
.
.	.	2,400	.	3,760	.	.	.
.	326	6	.	.	.	.	.
41,300	.	174,900	51,500	151,700	316,600	281,500	301,300
2,500	32,900	500	37,700	3,100	1,300	3,500	6,500
.	.	.	12,700	.	109,200	.	.
.	.	.	13,700	8,500	8,200	23,200	100
.	40	70	40
48,800	61,200	252,200	140,500	394,500	184,400	458,300	473,500
.
.	96	129	512
.
.
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.
.
56	112	.	20	140	15	91	52
.
.	.	.	60
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Ireland from the Colonies and Foreign Countries. The Board of Customs have in answer from those of the United Kingdom, and to supply this Department with them in the

Statistics and Intelligence Branch,
Department of Agriculture
and Technical Instruction for Ireland.

A. T. & Co. (Ltd.)

3,500. Wt. P. 71. 7. 08. (5. 08.)—21719.

1000 800 600 400 200 0

[illegible]